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THE PSYCHOLOGY OF PERSONALITY

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BY

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TO

G. M. V.

PREFACE

People have always been interested in personalities, but *personality* has remained—until recently, at least—a vague and shifting unknown. At the present time a great revaluation of human experience is under way, and the problem of personality has become one of the dominant thought centers of inquiring minds. Science, philosophy, psychology, and education are here finding a common interest. Thinking in these fields is constantly veering into this focus, and although personality is being variously defined from the different angles of approach, there is evidence throughout that we are moving toward a surer grasp of certain important principles.

Apart from philosophical and theoretical interests in personality, there is a widespread recognition of it both in social life and in commercial and industrial enterprises where problems of personnel arise. In these fields personality is a frequently used term, employed with some agreement as to its general meaning but usually with little comprehension of the actual nature of personality itself. The fact, however, that common usage is hazy on the side of comprehension does not detract from the significance of the word even when glibly uttered. To the philosopher the word may convey a profound meaning; to the man on the street it may refer only to Bill Jones. But the difference is one of degree, not of kind.

The purpose of the present volume is to set forth a consistent theory of personality based upon scientific

psychology. The writer has tried to accomplish this in a manner that will appeal not only to the avowed student but to the interested lay reader. Difficult problems and intensive analyses have not been avoided for the sake of simplicity; but an effort has been made throughout to introduce clear illustrations and clarifying explanations.

The author acknowledges a great debt to the many authorities whose works have contributed, either directly or indirectly, to the construction of his theme. Wherever possible these have been named in the context or in the footnotes. It has been the intention that the footnotes shall serve not only as a courteous recognition, but also as a bibliography for interested students.

The inspiration and helpful suggestions of Prof. C. E. Rugh and Prof. J. V. Breitwieser, both of the University of California, have been greatly appreciated.

P. F. V.

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THE PSYCHOLOGY OF PERSONALITY

CHAPTER I

THE NATURE OF PERSONALITY

We are forever lured and intrigued by the seeming mystery of personality. Half the world is busy judging that of the other half and every individual is primarily interested in his own. The word is foremost in the language of employing officials. Psychologists and personnel experts are experimenting with a hundred scales and devices for measuring it. In every form of social, commercial, and industrial enterprise, indeed, wherever the human factor plays a part, the question of personality is insistent. With personality as their theme neighborly housewives beguile the passing hour, bridge clubs and sewing circles engage in the gentle *divertissement* of analysis, school boards ponderously sort their candidates, and cabinet ministers hold solemn conclave over the appointment of an ambassador.

Whoever holds, or would hold, a position that brings him into contact with people must be ready to submit his personality to the merciless appraisal of his fellows. The unhappy lot of the school teacher is a common example of this, for from the moment he applies for his position until retirement, his personality must run the

gauntlet of unremitting inspection and criticism. He is weighed in the balance by his employers; forever inspected, rated, and reported upon by various degrees of overlords; judged unsparingly by the interested public. Facing each succeeding class, he is exposed to a psychic fusillade of appraisal. And not the least unpleasant to contemplate is the realization that he is analyzed and pronounced upon over a score of dinner tables every evening.

As it is with the teacher, so it is with the office manager, the factory boss, the department head, the chief, and the assistants to the chief, and all through the hierarchies in every enterprise of men. And while each is being weighed in the balance, judged, and graded, so is he, the victim, performing a like act with regard to those under him or over him or with whom he is brought into contact. The teacher appraises his students, the clerk his customers, the superintendent his underlings. Always and ever, up and down, the judgments are passed and exchanged. One is liked or he is disliked. He is strong or he is weak. He is suited to the job or he isn't. He is brilliant or he is commonplace. He is magnetic or he is insipid. He is great or he is absurd. Why? Because of his *personality.*

Great are the crimes committed in its name. Because of the apparent mystery that surrounds it, because of the fascination that all feel with regard to it, and because of the realization that personality is the key to all things desirable, charlatans and pseudo-psychologists are everywhere reaping rich rewards. There has grown up a host of schools, cults and "professors,"

claiming to hold the secret that will unlock the chambers of our inner being. Unrestrained by the rigid requirements of true science, they are free to aver all sorts of powers and devices for the guidance and improvement of men. The fact that they win so many followers and collect fees from so many otherwise level-headed people would seem inexplicable, were it not for the fact that psychology is as yet relatively a closed science. A certain grasp of the fundamental principles of the older sciences is sufficiently widespread to make life precarious for sellers of divining rods and perpetual-motion machines, although one cannot go too far in asserting a buyer's resistance even in things like these. It is safe to assume, however, that people generally will refute a claim that one can lift oneself by one's shoe straps, that water will run of its own accord up hill, or that the earth is flat. When it comes to psychology, on the other hand, there is a prevailing ignorance: one that is gradually breaking down, it is true, but which, nevertheless, obscures laws just as fundamental as those of physics. It must be admitted that much has yet to be discovered in psychological research, but that is true also of the other sciences. Enough is known to give the study of personality the dignity and background of law that the older sciences possess, and which protects them from the confusing pretensions of unscientific people. There is no legitimate reason why psychology should hold the position in the popular mind that chemistry held when that science was alchemy.

There is a postulate, sometimes positively asserted

and sometimes vaguely assumed, which contributes a mystic glamour to the study of personality and at the same time subjects it to the liberties of *outré* thought. This postulate is to the effect that personality involves a factor that lies beyond the bounds of physical and mental law. This factor is in some way identified with the self; but the self, it is assumed, is a mysterious and hidden principle, a third something that works in ways of its own, transcending science.

This assumption is traceable to a number of causes. One of these is the influence of philosophical speculation concerning the so-called "pure ego." An unwarranted relationship is drawn between the self which is an aspect of personality and that purely speculative and abstract self which may be the essential unit of individual being. Science neither affirms nor denies this pure ego, but sees no need to include it within the scope of its laws. Another cause for the assumed mystery in personality lies in the widespread notions concerning "hidden springs" of life, such as instinctive urges and desires that are presumed to be drifting about in a place called the "unconscious mind." Other causes are to be found in the phenomena of sleep, dreams, hypnotism, alternating personality, and clairvoyance. These phenomena, it must be admitted, have proved disturbingly elusive in the tracing of cause and effect, and it is not to be wondered at that the untrained person fails to share the scientist's placid confidence that they are as surely reducible to reasonable explanation as anything else. Here, as elsewhere, science is incomplete.

It is quite evident that personality has a dual aspect.

There is one's personality as one knows it and the same personality as seen or known by another. It might then seem reasonable to ask whether, when *I* speak of my personality, I mean the same thing as when *you* speak of my personality. In the former instance is meant something intimate and subjective, while in the latter is meant rather your impression of me as conveyed by the sum total of my behavior as you have observed it. What you do not see is my consciousness of personality: what I do not see is the reflection of it as thrown upon your mind. Personality is quite obviously both subjective and projective.

Since most of our talk about personality has to do with other people—that is, with projected personalities —we are liable to err in thinking of the subjective as another species. The two are in fact but the obverse and inverse sides of the same shield. We have, however, a special term to designate the inverse aspect: It is the *self*. Some writers would make personality and self equivalent terms, but it would seem much more helpful to restrict the latter as suggested. However, as we shall see, there is no clear or constant line between the self and the projected personality.

THE SUBJECTIVE PERSONALITY

The personality that I know as my own is the *self*. It is the single and enduring reality that *I* am so far as I am capable of knowing it. Each one of us knows that he is a consistent unit, and that this unit is continuous—always the same identity from the past

through the present and into the future.[1] It is a thing of memories, of realizations and expectations. Though it may sleep, we know upon waking that it is the same—unchanging, yet ever changing in the complex of present experience that comprises its consciousness.

In whatever way I may define my self, I can only know it in some form of consciousness. Descartes' celebrated proposition, "I think, therefore I am," expresses the fundamental datum of knowable selfhood, for in his terminology *thinking* is synonymous with *being conscious*. This mental state begins with the "blooming, buzzing confusion" of babyhood that James speaks about, and progressively evolves until it becomes a thing of perceptions, wants, feelings, strivings, purposes, ideas, memories, interests, satisfactions, and dissatisfactions—in fact, of all the psychic states that one is acquainted with as one's self. These states must be taken to include not only the high light of attentive consciousness, but all degrees and kinds. Very much of our mental life—in fact, most of it that affects our behavior—takes place on levels other than that of active attention. The marvelous plasticity of the brain permits an infinitude of impressions that ebb and flow with continually varying intensities.

The peculiar situation of the individual is this: that so far as he is concerned he *is* his personality. And this very fact puts him at a certain disadvantage, for he cannot stand off and view himself. He can, it is true,

[1] Even in the cases of multiple personality, it is always possible to postulate a true self of which the others are temporary variations or divisions.

develop considerable facility in imagining himself to be not only performer but onlooker, and this is a great help in his adjustment to social life. Such imaginary objectifying of one's self, however, is ineffectual because it is indirect and confused with the subjective material. We are hindered from seeing ourselves as others see us because we know what is going on inside. We *are* what is going on inside. It is a condition which at first glance seems in striking contrast with our observance of another's personality, for in this case the performer is a clear-cut object unobscured by its own consciousness. But what is our advantage? Can we truly interpret this object which stands out before us while we are in ignorance of its motives, feelings, ideals and ideas? No: we at once begin to probe for these things, that we may understand him the better. And once getting in touch with these, we must interpret them in the light of our own consciousness with all its personal, indwelling attributes.

We have a way of speaking which suggests that the changing content of our consciousness is but a puppet show performed before the eye of some deep-seated ego which is the pure self. We say, "I feel," "I think," "I know," as if the *I* were a separate reality which *possessed* the feeling, thinking and knowing but were not *it*. This habit of language is often cited as *prima facie* evidence of the duality of self, but the question is nevertheless an open one. As stated a few pages back, scientific psychology can get along without the concept of an essential ego; but we never can resist the adventure of searching for it. At least in the case of those of us

who claim no mystical powers, any amount of introspection fails to disclose aught but the changing mental states of which consciousness is composed, among them being a sense of personal continuity or identity. It is true that certain Indian mystics, and various individuals amongst us, claim to be able to pass into a state which they believe to be pure ego, but the "tough-minded" psychologist is inclined to interpret their experience otherwise. An open-mindedness must be preserved, however, especially in view of the persistent habit of duality in mental orientation. Logic does its best to oblige us to stand at one and the same time in the position of knower and the experience known, the one permanent, the other mutable.

The key to the problem may lie in the phenomenon of personal identity. In some way, the separate and passing mental states are linked into a unit, so that no matter what each state may be, we are always able to know it as *ours*. Each moment of consciousness might conceivably stand as an isolated moment of life, a luminous pearl upon a string, each meeting its neighbor yet ignorant of the sequence of matched and perfect units. But the fact is, each moment does not stand isolated, but is in some way related to the whole of the past states.[2] We seem to face this contradiction: that each moment of mental life is, in experience, different from each other one, and yet it is all a unity. The way out of the difficulty is to recognize the substantial dif-

[2] It is not intended to say that the duration is a succession of actual moments, but rather that the duration may be broken into moments of reference as a matter of convenience.

ference between the present and the moment of the past, but also to assume a *functional* identity between them. As William James expresses it:

> Both [yesterday's and to-day's states of consciousness] know the same objects, and so far as the by-gone me is one of those objects, they react upon it in an identical way, greeting it and calling it *mine,* and opposing it to all the other things they know. This functional identity seems really the only sort of identity in the thinker which the facts require us to suppose. Successive thinkers [moments of consciousness], numerically distinct, but all aware of the same past in the same way, form an adequate vehicle for all the experience of personal unity and sameness which we actually have.[3]

But this sense of unity or continuity is by no means the whole of the self. At any moment the self consists also of all the associations that are then contributing to it, whether these be vivid or obscure. These associations may be essentially intellectual as would be the case if one were anæsthetized in all his senses, so that only the power of thought remained. But normally much of our consciousness arises from associations that originate as reactions to stimuli somewhere within the organism, on its surface, or in the environment. The stimuli may be largely mechanical; but many of them are social in that they arise from other persons.

THE SOCIAL FACTOR IN PERSONALITY

Stimuli from other persons play an extremely important rôle in determining the consciousness of self.

[3] William James, *Psychology, Briefer Course,* pp. 202-203.

Whatever may be conveyed to us by the attitudes or behavior of others, either as individuals, groups, or organizations, always conditions the self and has much to do with determining the nature of its consciousness. It is clear, however, that the attitudes or behavior of these others are in large measure conditioned by our own projected personality. Thus it would seem that the projected personality is in a sense thrown back upon us in such a way as to modify deeply our very self. Between the two aspects of personality it becomes impossible to draw a definite line.

Through all these changes and fluctuations, the sense of identity in the self persists. This identity is so real to each of us that no philosophizing can argue it away. Its very persistency, however, has been at the same time a hindrance to the full understanding of personality. It has led to a conception of personality as something locked in a chest, something wholly within us, and peculiarly our own. But despite the indubitable fact of personal identity, the isolated self is in effect an abstraction. It is a dynamic and behaving reality because there are other selves in the environment, and because between them and with us there is a constant and interplaying relationship.

We are not, then, like so many watches, each wound and running by itself. Nor can we say that the group life of which we are such a vital element is comparable to a single mechanism, for its relationships and actions fluctuate, expand and contract, weave and combine. Our personality is what it is because we are a part of this, just as the group is what it is partly because of

our personality. That individual psychology and group psychology cannot be taken as separate data, except artificially and by abstraction, is the position of several recent writers. Quoting from one of them:

> As a vast cultural tradition is created, the activities of every agent come to be ever more and more intricately conditioned by the swollen stream of the group life-process. Where group life is human life, it must be emphasized that this stream of action comes to be more and more conditioned by the activities of these agents as differential factors. *To take these agents as differential factors gives the central meaning to that which is implied by the individual as in contrast with society.*[4]

We cannot say, with Pope, then, that "the proper study of mankind is man" as an isolated individual. Such a mechanical scheme, which assumes that the whole is the sum of all its parts, does not work in any interpretation either of the parts or of the whole. The situation is always a mutual conditioning. A recognition of this co-implication, as Balz calls it, is ever to be kept in mind in any understanding of personality or interpretation of the self. Yet we must beware lest we be carried into more or less mystical notions. We must remember that we are still studying the individual, and no amount of reasoning can destroy him as a very definite reality. I am still I, both to myself and to those with whom I come into contact. The point is that the I that I am is what it is only because of the historical and present implication with the social factor. Let us not

[4] A. G. A. Balz, *The Basis of Social Theory*, pp. 44, 45.

be swept into the notion, however, that the total psychological fabric is some sort of overmind, existing apart from a physical basis of some kind. We can identify no such basis for a social or group mind.

There is thus really no way to contemplate personality apart from the social *milieu* in which it is inevitably cast. It is the social relationship that makes personality possible, and without it there would be none. But it is just as true to say that there would be no social relationship without personality. These facts are the answer to radical individualism as a philosophy.

Thinking of society as a great interacting ensemble of persons, we may compare it with an orchestra in which each member is or should be trying to play in harmony with the social ideal; and we can say that the degree of harmony attained by each one is equal to the degree of personality he has attained. It would seem, then, that the ensemble is really quite far from a perfect symphony, for only a few individuals in all the world's history have ever attained perfection. The reason each one is more or less at variance with the ideal is that, as an individual, he lacks either the requisite original nature, or has not known the requisite environment, or both. Looking at the matter in this way, we see that personality becomes the central theme in all educational endeavor.

THE PROJECTIVE PERSONALITY

It was pointed out at the beginning of the chapter that the personality may be viewed as subjective and

projective, and that in the former sense it may be identified with the self. It was shown further that the self can only be regarded as a variable which is constantly conditioned by the environment. It was further shown that the great determining factor in the environment is the social one. Giving this social factor due weight, it becomes obvious, as was said, that we cannot draw a line marking off the subjective from the other aspect. We cannot say that there is a masked and secret personality which reposes behind a veil, and another which is outward and consists of behavior. Behavior is, in fact, but the observable aspect of that continuous interaction which both gives rise to and is personality. Admittedly, there is an unobservable aspect also, but this is not to be set off as something distinct and apart. The subjective and projective are but two interchanging modes or conditions of one and the same thing.

This must not be taken to mean that all one's personality is written in his behavior; or, what is the same thing, it does not mean that his outward behavior is a complete index to his personality. There is always something "going on inside," and to know all there is to know about a person we should have to be in possession of both the subjective and the objective facts. Such a final analysis is impossible. Experience has shown that even the most conscientious efforts often fail when one tries to analyze his own subjective processes. How hopeless, then, to undertake the subjective appraisal of another. But yet, realizing the intimate relationship between the subjective and objective aspects of personality, and realizing that they are not two

definitely delineated fields, we may hope to get nearer and nearer the truth as we perfect our appraisals of behavior. It is from this end that the new school of behavioristic psychology approaches the problem of human nature. In recent years there has been a great development in methods and devices for measuring behavior, and in the technique of analysis. These movements, together with our knowledge of genetics and inferences drawn from studies of animal behavior, place us in a position to describe and appraise human personality with a fair degree of intelligence.

We may define behavior as all man's observable reactions—everything he does; and so it includes not only conduct and all kinds of motor acts in general, but any overt evidence of intelligence, impulse, feeling, or habit. A blush, a frown, striking a blow, a hesitant manner, how one walks, solving a problem, speaking, telling a secret, are all behavior. Obviously, it is only through behavior that we express ourselves to other beings; to them our personality is knowable only through that medium. We frequently witness the resort to psychology in murder trials, where the defense seeks to establish mitigation by proving abnormal emotionality or psychosis. In these cases the experts have no miraculous magnifying glass at their command, but are able to arrive at their conclusions only by careful observations of behavior, especially as indicated in reactions to delicate tests. In these tests, blood pressure and other reactions generally unobservable are brought under observation, and so become phenomena of behavior as truly as arm movements are.

Since we can by no scientific method "listen in" on the subjective personality or photograph it or draw its reflection, we are obliged to depend upon the objective aspect, the behavior, in judging the personality of another. This is a fundamental principle of science in this field, and distinguishes the modern point of view. Since the ways of science are notoriously tedious and painstaking, it is not surprising that those unaffected by its spirit resort to magic. Hence the popularity of clairvoyants, palmists, phrenologists, and "analysts." It is not to be denied that at times one of these "experts" will identify a salient trait or two, for the reason that some of them develop a cleverness in drawing inferences from visible behavior. But no "psychologist" of the platform variety can claim validity for his methods. Only a thoroughgoing technique developed through laboratory practice will ever solve the problem of character analysis.

A proper study of behavior, it must be insisted, cannot be limited to the grosser evidences. It must seek to get at the subtle emotional reactions and the deeper processes of the mind. The behavior which gives the key to these may be detectable only by the use of delicate instruments; or it may consist only in spoken words uttered under test conditions. The subject may be asked to introspect, or to describe his dreams, but in either case we do not get the mental state itself, but the report of it, which is behavior.

In the great game of life it is really the behavior of the individual that counts. We can know love only in some evidence of loving, courage in some

evidence of being courageous, studiousness in some evidence of being a student, sociability in some evidence of being sociable. Our characteristic ways of acting give us our social grading and determine our effectiveness. They are the things the employer wants to know about the prospective employee. What we are in the abstract, or what we think we are, or what we might have been if things were different, does not count for much in the hard world. Personality is, for practical, work-a-day purposes, "ourselves as others see us."

This study of behavior might be undertaken from the economic point of view, considering it with regard to the requirements of one's actual or contemplated occupation. Accordingly, we might limit our present discussion to the personality of the effective clergyman, teacher, doctor, or lawyer. Or, if we are interested in the nonprofessional occupations, we might proceed to consider the ideal personality for the policeman, the stenographer, the filing clerk, the politician, or the salesman. We shall approach the subject, however, not as vocationalists but as students of human nature, with the hope that we may discover the general principles and forces that make us what we are.

THE PERSONALITY AS CHANGING AND AS UNIFIED

The personality as a whole, subjectively and projectively, poses as a changing thing and as unified. This is hardly a paradox. It means simply that something possessing a consistent unity fluctuates and progresses in its modes. I know that I am the same person that I was twenty years ago, for my memories have

persisted despite the fact that the substance of the body I then inhabited has all been replaced. But it is also quite true that while the self that I am has always been the same "I," it is none the less a very different one.

For one thing, most of my ideals and attitudes have been entirely revolutionized. I look upon the world from a point of view that has changed almost completely. Much that I then arrogantly asserted to be right, now seems wrong, and vice versa. Many things that I then cherished and coveted now leave me cold, and in their place have come a host of other objects of my solicitude—different friends, other honors, a family, new goals and ambitions, more practical objectives, and pleasures distinctly at variance with the old. And with all these have come, of course, an entirely new set of adjustments. My impulses have been modified, my habits changed. Accumulated experience and knowledge have altered the nature of my purposeful conduct. This transformation has been a gradual thing, and it is still going on. There is no static personality.

The personality may change in other ways. As Coffin points out, every well-rounded and worth-while individual will, by the time he has reached middle age, have experienced three levels of selfhood.[5] These are defined as the *present* self, the *empirical* self, and the *personal* self. The present self is that of the child who literally lives in and for the present. It is a self of the senses and immediate desires. It does not project into the future, and the past enters it chiefly as tutor in the ways and means of immediate satisfaction. This pres-

[5] J. H. Coffin, *Personality in the Making*, pp. 233-36.

ent self, while that of the child, is nevertheless the self largely of many grown people. The pampered, the spoilt, and the idle are frequently but childish selves who live for the moment, and become bored or moody or "temperamental," or resort to daydreams, when the present holds no charm. And the very best of us surrender often to the charm or ecstasy of the moment, whether it be on the wings of melody, in the arms of love, or at table on Thanksgiving Day.

The empirical self is a calculating projection into the future. The child becomes an empirical self when he gives up an immediate pleasure because his giving it up will contribute to some later satisfaction. When we perform present acts for future rewards, we are a step beyond the *present* self, for we now live in an extended world where we intellectually grasp the contributing relation of the present to the future, and appreciate the desirability of future satisfactions. Coffin is no doubt right when he says that many individuals never know a better self than this. And certainly most of us have to spend a considerable portion of our lives in this empirical self or go to the poorhouse.[6]

Every worth-while individual, however, must occasionally, at least, soar beyond the present and empirical self. He must feel his personality identified with some great cause or ideal; he must feel that he is a part of some magnificent purpose or goal. In this self

[6] "Empirical self" has a different meaning in Coffin's terminology from that of certain other writers. James, for example, by this term means that self of experience which is *known by* the "I," pure ego, or knower. See the discussion in his *Psychology, Briefer Course,* Chap. xii.

he must still calculate as the empirical self does, but not with selfish standards. Now the counters in the game are idealistic, or at least the ends toward which they are directed are so. This idealistic self, Coffin says, is the *personal* self, personal because it is the self in which one realizes his highest and best personality. He suggests that the highest ideals of the personal self are those that are identified with social welfare. Should we not add to this high aim, however, those of science and the arts?

The self, and likewise the entire personality, is not only changing in the ways that have been described, but it is alternating. We all possess, in a certain sense, different personalities for different occasions. The reactions of the business man in his office are determined by an entirely different set of impulses, aims, and experiences from those that prevail in his home or club, so that he often appears in a different garb of personality in one situation from what he does in another. Shylock, sweet and benevolent at home, heartless and exacting in affairs, is a classical example that finds many a counterpart. The stern and businesslike schoolma'am of the classroom who is the "life of the party" when a jolly company is assembled, is but a variation upon the theme.

Our personalities also fluctuate with the state of mind. We are not the same when happy as when dejected; when successful as when suffering defeat; nor are we the same when conscious—or should we not say unconscious?—of good health, as when worrying over our physical state. Indeed it would seem that the sense

or feeling of selfhood is subject to variation like a thermometer.

The self is also subject to what is commonly referred to as "expansion." This means an enlargement of one's feeling of self by including the sense of oneness with intimate possessions. Certainly a man's self expands when he becomes a father, and a woman's assuredly, when she becomes a mother. The trials and tribulations, the talents and accomplishments, the joys and hopes of the offspring are poignantly those of the parent. And this same enlargement of the self is seen in lesser personal associations as well. One's books, his pictures, his collections, his bank account, and even his trifling properties, are so closely a part of him that when he thinks "me" he includes them as a sort of penumbra of the self. The same is true no less with regard to the less tangible possessions—ideas, principles, affiliations, loyalties. When we are seated in the grandstand at the "big game," and our team comes charging on to the field, how acutely our self expands! And when we were in the Great War, whose self did not enlarge to stupendous proportions? The cause was "my" cause, the nation a part of "me," our army and the Allies' armies "mine."

What, then, of the *unity* in change? In spite of many phases, one does not speak of his *selves;* he speaks of *himself*. The sense of continuity referred to earlier in the chapter is something that links present and past; but that is a temporal linkage. Is there not also a unification that is qualitative, such that in spite of shiftings and changes our personality retains its in-

tegrity? To answer this, a definition may be submitted. *Personality*, let us say, *is the sum total of one's habit dispositions.*[7] These dispositions are, of course, the consequence of two interrelated aspects of the total experience, namely, the native chemico-physical make-up of the organism and the stream of environmental factors that weave their influence into it.

Considering the sum total of habit dispositions, we find in it the material for that consciousness of self which is the subjective personality, and for that behavior which reacts upon others and constitutes the projective personality. But since experience is continuous and cumulative, it follows that the habit systems must continually be modified, added to, and reconstituted. A process goes on in which there is a constant sloughing off of habits, strengthening of others, acquirement of new ones, and expansion of integrations within the whole.

In the normally constituted individual such a habit-forming and integrating process must tend more and more toward a stabilizing and knitting together of a great core of habits. This core will represent the central elements of one's dominant life interest. There will, of course, be other cores representing lesser interests, both serious and trivial. It is the relative permanence of these cores or centers of interest which gives unity to the personality. The bud of personality seen in the youngest infants will not have such a core, for in them there is evident only a vague nucleus or

[7] John B. Watson says: "Personality is but the end product of our habit systems." See the chapter on Personality in his *Behaviorism.*

forecast of disposition. But throughout infancy and youth more or less nebular integrations progress, and as one approaches adulthood these should take definite forms and assume some evidences of stability. About any core of habit formations, however, there will always be playing the more loosely integrated habits, and within it there may be changings and shiftings. It is so constant as to give a large unity to the personality, but it is plastic enough to permit both fluctuation and evolution.

CHAPTER II

HABIT THE KEY TO PERSONALITY

Personality was defined in the preceding chapter as the sum total of one's habit dispositions. To justify this definition it is necessary to give a broader meaning to the word "habit" than is customary. People have generally been educated beyond the once popular notion that a habit is necessarily a *bad* habit or a queer mannerism of some kind, for it is commonly understood that one may have a habit of washing the teeth or going to church. As we shall use the word, it will cover all man's acquired reactions, intellectual,[1] motor, and affective, and will recognize their manifold integrations and changing patterns. Such a meaning seems quite justified in the light of our present knowledge of the physiology of the nervous system.[2]

We shall ask the reader to bear in mind, throughout this discussion, that habits are *dynamic*. They possess a vigor for carrying themselves along. They are processes of which we may become quite conscious, especially

[1] Under "intellectual" habits we shall always subsume not only the "higher" mental processes, but all instances of perception, memory, imagination or ideation taken exclusively of affective experience.

[2] The classical study of the nervous anatomy involved in habit formation is C. S. Sherrington's *Integrative Action of the Nervous System.* An excellent brief account recently published will be found in Chap. ii of C. J. Herrick's book, *Brains of Rats and Men.*

if balked, so that we feel their "urge," their "impulse." When they are under way we *want* to do them. This is the central fact in human dynamics, and so important that its full implication must be reserved for the chapters on Character and The Dynamics of Human Behavior.

WHAT IS HABIT?

Habit, in any sense that we take it, is the result of learning. In an ideally simplified case a habit consists of a single response to a single stimulus. When a baby, upon hearing the word "bottle," holds its hands out, it is because a habit has been established. When a teacher has taught a pupil to say "boy" when a card with the word BOY printed on it is held before him, it is likewise because a habit has been set up. In the ABC of habit, it may be said that in the former case the single stimulus is the hearing of the word, the single response is the thrusting out of the arms, and the mechanism in the nervous systems which links the two and over which the nerve impulse travels is the "bond."[3] This picture of an elementary habit as stimulus, bond, and response is a helpful but oversimplified one. For the present, however, we need not go beyond it.

We may then draw before the mind this marvelous nervous mechanism of the human body, which is the physical basis of habit formation. Manifold beyond conception, beginning with the tiniest nerve endings that take their rise at every sensitive point in the organism, a mesh of neurones provides convergent strands

[3] Thorndike's term.

for conveying impulses inward to the spinal cord and the brain. From every point where sensation can be produced—not only from eye, ear, nose, mouth, and skin, but from internal surfaces and from organs, joints, and muscles whence may arise sensations of pain, heat, cold, strain, or position—the inward-leading neurones provide pathways for the conveyance of impulses. But not all of these pathways arise in areas that normally insure some form of sensation, for many of them arise in parts that function unconsciously, and convey impulses concerned with the regulation of organic processes.

To this wonderfully differentiated and enmeshed equipment for conveying impulses to the spinal cord and brain must be added an equally intricate system for conveying impulses outward to all the muscles and organs that may in any minute or large way effect an adjustment of the individual.[4] While the inward-leading neurones make man an infinitely complex receiving mechanism, the outward-leading ones make him an equally complex reacting mechanism.

Along the spinal cord and in the brain, but especially in the latter, we find the most wonderful part of the whole equipment; for throughout these areas are spread the *connecting* neurones and *synaptic* "valves" which make possible the infinite versatility of human behavior.

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[4] It is to be understood that the manifold reactions of the organism are not solely the result of nervous impulses. Very much of the behavior of the organism, such as maintenance of organic balance, is accomplished through chemical activity. The functions of the various glands are chemical in nature. We do not have personality, however, until habits are formed.

By means of these intermediate mechanisms the incoming impulses are distributed to the outgoing nerve channels; and it is in this phenomenon of distribution that the key to personality lies. This connecting equipment has been compared with the central office of a telephone system, and the analogy would be close enough if we thought only of the arrangement at the spinal cord; for here we have an interlocking device so ingenious as to make possible the shifting of any incoming impulse that reaches it to any available outgoing pathway. But the fact is, if these spinal-cord shiftings alone were made, we should be wholly upon a nonintelligent level; and if we were capable of forming any habits at all, they would be the simplest and most mechanical conceivable. Spinal-cord reactions are wholly inadequate to meet the multitudinous needs of life; and so our central switching station—to continue the telephone metaphor—is provided with direct lines to a still higher "central," which is to say, the cerebral cortex. Selection is here introduced into the scheme.

It is customary to speak of three reaction levels upon which behavior adjustments are made. Those at the first or spinal level, as has just been suggested, are relatively few, and are simple, immediate, and predictable, and, for the most part at least, instinctive. They are very fully represented in normal infants.

Reactions of the second level are those whose impulses are switched in through the cerebellum or some part of the mid-brain. These include a large number of reflex or semireflex adjustments that are usually more complicated than those of the spinal level. Many of

them are found in newly born infants, and some are as simple as spinal reactions.

There are two interesting problems concerning reactions of the first two levels which must be mentioned. The first has to do with the question as to whether habits may be formed on these levels without the mediation of the higher processes of learning. The answer to this seems to be that such learning is possible; for, as one writer puts it, "worms and most other invertebrates can acquire 'associative memories,' that is, can learn, though they have no cerebral cortex whatever, and animals as high in the scale as dogs if deprived of the cortex still can acquire simple habits."[5] The fact that such learning is possible, however, must not lead us to the conclusion that it actually takes place in man. The instrumentality of the higher brain is so convenient and ever ready that it no doubt mediates in all normal learning. The second problem is concerned with the hypothesis that habits acquired through the instrumentality of the higher brain may, when thoroughly automatized, be short-circuited at the lower levels. The writer quoted above, basing his judgment upon the results of experiments with animals, concludes that such short-circuiting does not take place.[6]

We may accept it as probably true that first- and second-level reactions are fairly uniform among normal people, except that they will differ in energy. The uniformity is at any rate sufficient to permit our placing

[5] Herrick, *op. cit.*, p. 167. *Cf.* also Morton Prince, *The Unconscious*, pp. 238-40.
[6] Herrick, *op. cit.*, p. 169.

them in the background so far as personality is concerned. We must turn to the third level, which is that of the cerebral cortex, to find the mechanism of habit formation. It is in this intricate mesh of neurones, largely undifferentiated at birth, that nature displays the triumph of her art in human construction, for it is the equipment by means of which all modifications in behavior are achieved. Here we have a structure consisting of vast numbers of nerve cells with their extending filaments infinitely interwoven. Within the plane of the cortex, as we know, certain small areas are given to specialized functions in the production of sensations and the control of bodily movements; but much the larger portion seems to have been contrived by nature for the organization of experience.

Such an organization, we must assume, is effected upon the physical basis of the interwoven nerve cells. Thus we have the ground upon which sensations are translated into perceptions, giving meanings to whatever is carried to the brain over the sensory paths. And we have the ground for an endless association and interrelating of these meanings. That consciousness which in the newborn infant must be but a meaningless blur gradually takes form and system as meanings multiply, and as the power of reinstatement of meanings through images develops. We seem forced to assume that this gradual organization is due to the fact that each new meaning is accomplished by a modification of areas of brain cells, such that when the appropriate stimulus recurs those cells are activated. And we seem forced to assume that when once this modifica-

tion has been made it may become conjoined in an ever growing pattern with any and all other modifications in a manner determined by the peculiar experience of the individual. And so it comes about that when one area of brain cells, now specialized, receives a stimulus, that stimulus, or the impulse to which it gives rise, may be passed along from one group to another, always providing that it traverses paths and systems of paths that have been outlined by experience.[7]

All these modifications that experience may bring about within the structure of the nervous system are the sum and substance of learning. It is equivalent to saying that they are the basis of habit. The child who has learned to say "boy" when the printed word is placed before him has done so because of a cortical modification. If at the same time he gets a mental image of a boy, it is because of a similar modification. If the image is of a boy friend, and if he thinks of the boy's new bicycle and of Santa Claus, and then says "I got a pair of skates for Christmas," it is because of associated cortical modifications. Each separate association may without violence to physiology be called a habit. Each part has in experience been linked with its predecessor along cortical lines, and what we have is a series of reinstatements. The fact that just these habits may never be repeated, while the habit of crossing a *t*, for example, may become infallible, offers no difficulty. The possible appropriate associations with

[7] Not all systems of psychology accept the principles here stated, and among those that do there are many disagreements in detail. At present the strongest opposition to the principles as outlined above comes from the *Gestalt* psychology of recent German origin.

the word "boy" become almost countless as experience grows; but the crossing of a *t* is always the one appropriate consequence.

This brief excursus into the realm of mental reactions may have suggested that habit is not a simple one-and-one process after all. It would be well, nevertheless, if we should for a while keep to the ABC of the subject. A simple habit then stands out as a phenomenon which begins with a stimulus and ends with a response. The stimulus affects certain receiving nerve filaments in such a way as to release energy which flows over a neural pathway, inward and then out, producing the effect. That is exactly what happens in the case of instinctive or reflex acts, only in these the pathway or bond is a provision of nature. In the case of habit the bond is acquired, and in most if not all cases it includes a cortical segment. If the habit is mental, important segments necessarily lie wholly within the cortex. In any instance the bond must be looked upon as a complex neural linkage which has been effected through experience.

Still considering habit in its simple form, it is important to note that it occurs manifoldly on three different planes of human experience: there are motor habits, habits of thought, and habits of feeling or emotion. Life abounds in obvious examples of motor habit, not only in such simple reactions as turning a doorknob or puckering the brow, but in such coördinated series of habit reactions as walking, talking, eating, or writing. And likewise habits of thought, though not commonly recognized as such, may be accepted as a famil-

iar experience of the same category. But when it comes to reactions of feeling, including emotion, a doubt might at first be raised. Perhaps we need only state here what will be developed in a later chapter, namely, that purely instinctive reactions of feeling are few in number, and that practically all our fears, loves, angers, and hates, pleasant feelings and unpleasant feelings, likes and dislikes, are the outgrowth of experience and so involve learning. We come to perceive the objects of these feelings, which means that the cortex, or instrument of habit formation, has become implicated. We learn to fear certain objects and to love others; we learn to enjoy certain situations and be annoyed at others; and in all such cases it is because through experience certain neural modifications have come about such that when the appropriate situation is encountered the resulting impulses travel to the organic and bodily sources of feeling.

In endeavoring to define habit as we have done, making it the very basis of personality, it may seem that we have neglected an equally important factor, the original nature of the individual. The reader may well ask the question: Why this apparent blindness to the hereditary endowment? In answer to this, let it be said with all possible emphasis that the hereditary factor is of great importance. Certainly original nature has something to do with the fact that one person possesses the sensitiveness of an artist and another the callousness of a clod; that one is phlegmatic and slow, while another is volatile and keen; that one is sensuous and gross, and another saintly and refined.

There are infinite differentiations in native structure such that no two of us could be exactly alike if born in the same place, in the same hour, and reared through exactly the same experience. Differences in neural sensitivity, in metabolism, in organic processes, and in the functioning of the endocrine glands all combine to produce in each individual his own peculiar groundwork for the development of personality. But none of these conditions *is* the personality. They are hardly even predispositions or potentials, but rather the ground that is here favorable and there unfavorable; here fertile, there sterile, and in another place neutral. They are meaningless and unexpressed until the habits are formed. They are but the soil in which experience builds the habits.

THE MECHANICS OF HABIT FORMATION

Though the fact of habit formation is so obvious, and its dependence upon neurone modification so sure, there is nevertheless much to be learned about the physiology of the process.[8] It seems certain that the key to this part of the problem is the point of juncture between neurones known as the *synapse*. The discharging end of a neurone spreads out into a brushlike process which comes into approximate contact with the dendrite or receiving end of another neurone. An impulse traveling along one neurone cannot proceed unless it is able to pass across a synapse into another neurone. Each synapse is, however, for purposes of habit forma-

[8] As to the teleological and other philosophical aspects of the problem, no attempt is here made to speculate.

tion, primarily a point of resistance. If synapses were primarily points of facilitation, any impulse getting into the nervous system would spread throughout it indiscriminately. The modification which is essential to habit formation is evidently a change in a sequence of synapses such that they *facilitate* the transmission of an impulse peculiarly generated by a given stimulus or situation.

Just what the difference between two impulses is, such that a synaptic chain will offer facilitation to the one and resistance to the other, is at best baffling. In the opinion of the writer, the difference is due to the intelligent discrimination performed in the cerebral cortex, this discrimination being possible because of the perceptions that have been built up there.[9] The objection to this theory is that thoroughly inured habits are apparently performed without the concomitance of consciousness. This is not so great a difficulty, however, when we recognize that the conscious element in any behavior may range from very high to very low, and in fact frequently subsides practically to the limen—that is, to the point of disappearance.

There has, of course, been much speculation as to the nature of this modification at the synapses. The microscope shows no actual physical union, although there is contact or near contact. But it is probable that when two neurones are conjointly active, it is because the dendritic part of the junction is extended to form

[9] This theory cannot be taken without reservation, for it is a well-known fact that animals from whom the cerebral hemispheres have been removed are capable of learning certain very simple reactions.

a more closely knitted connection, thus permitting the passing over of an electro-chemical influence. When once the end processes have acted in this way they retain a disposition to repeat. There are other somewhat similar theories.

It is our synapses, then, that become educated. Probably no one has ever stated the whole case with such brevity and clarity as McDougall in the following paragraph:

> If the conclusions just stated are well founded, the part played in the nervous system by the synapses is supremely important, for it is the various degrees of resistance of the innumerable synapses . . . that guide the course of the excitation process initiated in any sensory neurone, as it spreads from neurone to neurone through the maze of the nervous system, and determines its issue by this or that group of motor neurones to this or that group of muscle fibers. For . . . the sensori-motor arcs, even those of the spinal level, are not commonly simple and isolated from one another, but are combined to form neural systems of various degrees of complexity. And no one system is completely isolated from the rest, for, if the nervous system is in a state of abnormal excitability, a stimulus applied to any small group of sensory neurones may initiate an excitement which spreads throughout a very large part of the nervous system and throws almost all the muscles of the body into contraction. But when the nervous system is in a normal condition, the excitation-process resulting from a stimulus of moderate strength applied to a sensory neurone, or a group of sensory neurones, spreads through a limited system of arcs and excites a coördinated contraction of one group of muscles only. The neural system was defined as a group of sensori-motor arcs so connected that

when any one part of it is excited through a sensory neurone the excitement tends to spread to the rest of them. We now see that such a system consists of neurones connected together by synapses of low resistance, and we can understand how simple systems, consisting of a few neurones united by synapses of the lowest degree of resistance, may be connected together by synapses of rather higher resistance to form more complex systems, and these again by synapses of still higher resistance to form still more complex compound systems. We can understand, too, that since the resistances of the synapses are liable to temporary variations from various causes, the effects produced in the nervous system by a stimulus of given character and intensity applied to any group of sensory neurones may be very different on successive occasions.[10]

Thus upon the delicate framework of the neurone structure experience plies its arts and weaves its habit systems. But what principles are implicit in this process which bring it about that just those habit systems are formed which do form? The answer involves some very complex matters. To begin with, one must realize that each individual is a unique piece of construction with regard to his bodily make-up and his nervous sensitivities. His structure being cast by heredity, but still largely potential in infancy, he starts life with a few primitive dispositions and wants. To these experience rapidly adds a great number of changing, growing interests and desires. These develop from experience as habits again, which are only to be realized *in* experience. To attain such realizations, the individual is ever modifying his reactions. These modifications,

[10] William McDougall, *Physiological Psychology,* p. 32.

however, must always be conditioned by what the individual actually is at the time. Thus the habit structures being developed by a bright and energetic boy will be quite different from those of a dull and lazy one. A pretty and attractive girl with mediocre intelligence will form entirely different habits in her efforts to win the admiration of young men than would one whose chief charm lay in her mentality. Even in exactly the same environment, commanding physique will condition habit formation in one way and insignificant stature in another way. Certain delicacies of nervous organization may condition one to ways that lie within the arts, while in another the absence of any such delicacies may condition him to ways quite prosaic. The possible combinations in such qualitative differences are infinite.

Through all the progress of habit building the principle known as "trial and error" is more or less implicated. This is particularly true with regard to habits that seem to have developed fortuitously. The coquette, for example, desiring admiration, has arrived at her peculiar habits through a gradual process in which certain kinds of behavior have been found more effectual than others. The effectual ways have been retained and the less effectual ones eliminated, and yet the young woman may have been quite ignorant of the technique employed. In the development of the habits of a prize fighter or a clergyman the same may be said.

We may observe a similar procedure in a hungry cat if we place it several times in a cage with some tempting food close by outside. The cat will feverishly try to escape, biting and clawing the bars, pushing with its nose,

and attempting to squeeze through. In all these random movements it will ultimately attain its reward by accidentally releasing a catch which permits the door to fall open. If we repeat the experiment a sufficient number of times we shall observe that the cat gradually relinquishes the useless movements until in the end only the effectual movement is left.

Practically the same thing occurs when one is learning a skill. A little child, in trying to write the letter *a*, makes very clumsy and random movements at first; but gradually the grosser errors are eliminated and then the minor errors, until finally only the satisfying ones are left. An adult trying to teach himself typing proceeds in just the same way, except that his efforts are facilitated by better control and by items of information or practice that he has already acquired.

We may go still further and show that the same procedure is largely involved in solving puzzles or in reasoning. In these cases one solution after another is tried, the field being gradually narrowed down as ineffectual attempts are eliminated, until the happy outcome is finally attained.

In the case of the human, of course, the procedure is seldom a blind and random trial and error as it is with the cat in the cage. In the first place, humans possess a capacity for imitation.[11] But more important than this, they possess powers of analysis and generalization. They are able to bring laws and principles to bear upon situations, and possess the capacity

[11] In spite of popular notions, it is probably true, as Thorndike and others maintain, that animals do not imitate.

for insight. In other words, they are able to use the habit structures of the mind in such ways as to shorten, and often even to eliminate, gross trial and error.

Humans also possess the power to see and hold in mind an objective, as well as powers of controlled attention, which combined with imitation enables them greatly to abbreviate trial and error under tuition. The function of the teacher is to guide the habit-building experience by directing analysis, encouraging generalization, and eliminating useless efforts as far as advisable. With such assistance the learner's trial-and-error procedure is reduced as nearly as the teacher's art can conspire to a desirable minimum.

But not all our habit associations are formed by trial and error, either blind or enlightened. A far more pervasive principle runs through all our learning, whether on the intellectual or motor plane, or in the sphere of the feelings. The principle involved is that of the *conditioned response.* Briefly, the principle is just this: a habitual response to a given original stimulus may become attached to other stimuli simultaneously occurring with the original one. As examples: The sound of a rattler would not produce flight and fright if that sound were not a simultaneous accompaniment of the rattler himself; giving a dog meat makes his mouth water, but if a bell is struck every time he is given meat, he will soon show the salivary reaction to the sound of the bell alone; if we are driving an automobile at night, and a red light appears before us, we stop because the red light has always been associated with danger; if we feel a pain in the right side of the

abdomen, we think of appendicitis because a pain there has always been associated with that ailment. This transference of reactions from one stimulus to another is exactly what has gone on continuously throughout our experience. Most of our learning is the result of it. Not only is the transference from an original stimulus to a second, but from a second to a third, and so on; nor is the sequence limited to a chained series but may spread fanwise. As an example of a chained series, think how a child learns that the spoken word "cat" means *a cat;* simply because the word is spoken many times when he perceives an actual cat. Sometimes the spoken word "cat" is accompanied by the printed word CAT, and the child learns to think cat when the printed word appears. But now the printed word in English may be accompanied by the printed word CHAT, and this in turn by the spoken word "*chat,*" and so the child learns the printed and spoken French forms. And as an illustration of a fanlike transference, think how the original perception of the cat, evoked only by the total cat, may soon be evoked by a meow, a purring, a scratching, a rubbing against the leg, and a number of other stimuli that have broken off from the original one, but are capable of prompting the thoughts, feelings, and actions appropriate to the original. It is just by such processes as these, such conditioning of responses, spreading and complexing, that habit systems are built up upon the equipment of native reflexes with which we begin life.

In the mechanics of habit formation it is indeed a fortunate provision that consciousness may be in large

measure shunted off from an act as the adjustment attains facility. When we learn to dance, for example, every movement of body and limbs is directed with keen attention. But as the performance grows automatic the mind is gradually relieved of the need for controlled attention, until finally one can dance with ease while contemplating the ethical system of Aristotle. This capacity represents a wonderful economy, for without it the mind would be constantly engaged in the control of the simplest acts. It does not mean, however, that the cortical linkages are cut out, but simply that they are functioning more or less automatically.

What is commonly described as absent-mindedness is due to this automatism of habits. The so-called absent-minded professor is generally one whose mind is quite the contrary of absent; it is absorbed in thinking, with the result that his unobserved habits get him into trouble. A stimulus appears which sets off a habitual, but at the time inappropriate, sequence of responses. James speaks of being in Paris after an absence of ten years and visiting the locality where he had attended college for a winter. Walking along in a brown study, he suddenly awoke to the realization that he was on the steps of the apartment house where he had lived. He calls attention to such instances as people going to their room in daytime and undressing because the preliminary conditions were the ones that usually set off the habit; to musical performers playing a familiar piece while conversing or engrossed in thought; and to Robert Houdin, the prestidigitator, who was able to juggle four balls while reading.

INTEGRATION AND RELATIVITY IN HABIT

A true picture of the habit basis of personality can never be presented if one clings to the conception of habits as specific, one-to-one activities consisting of stimulus, bond and response. It is true that many psychologists insist upon maintaining this arclike simplicity of the habit, and are able successfully to demonstrate how such a complex performance as that of typing, for example, may be analyzed into a fine-spun sequence of specific reactions to specific stimuli. This ready-cut system of neural mechanics is fairly accurate up to a certain point, but it falls far short as an explanation of the various and complex habit behavior of man.

Thorndike leads us a long step beyond this naïve conception in his widely accepted studies of the learning processes.[12] He explains, to begin with, that one's reaction to a situation is not rigidly determined by a single habit bond, but is always conditioned by the "set" of the individual at the moment. As he points out:

> The situation "a certain printed word" has different effects upon learning, according as the child in question is bent upon reading or upon spelling; the figures $\frac{247}{126}$ obviously determine learning differently according as the pupil is predisposed to copy, to add, to subtract, or to multiply; the same hand provokes one response at cribbage and another at whist.[13]

[12] See his *Educational Psychology, Briefer Course,* Chap. xi.
[13] *Ibid.,* p. 144.

We are led to infer from his discussion that this "set" is due to the quickened state of habit formations in the brain and body. This fact leads us to see at once that the situation to which the response is given is not the *object alone*, but the object plus the mental and bodily state. Our simple formula disappears.

In further description of learned reactions, however, Thorndike carefully maintains the one-to-one relationship between stimulus and response. He holds that "only rarely does man form connections, as the lower animals so often do, with a situation as a gross total—unanalyzed, undefined, and, as it were, without relief." He affirms that it is the rule for man to respond in a "piecemeal" manner to situations; or in other words, that his behavior is in the nature of habit responses to prepotent elements within the matrix of the gross situation. These elements are "prepotent" for the reason that they are the unit stimuli for straightaway habits, so constituted by experience.

The elements which can thus shake off the rest of a situation and push themselves to the front may be in man far subtler and less conspicuously separate to sense than is the case in animals. Perhaps a majority of man's intellectual habits are bonds leading from objects which a dog or cat would never isolate from the total fields of vision or hearing in which they appear. Very many of his intellectual habits lead from words and word-series, from qualities of shape, number, color, intent, use and the like, and from relations of space, time, likeness, causation, subordination and the like—elements and relations which would move the lower animals only as the

component sounds and relations of a symphony might move a six-year-old destitute of musical capacity and training.[14]

Despite these refinements and others which Thorndike, more than any one else in America, has done so much to emphasize, it seems that the description is not half complete. In fact, the notion of a habit as a straight-line, stimulus-bond-response affair appears to be tenable only in the simplest instances. Let us consider some of the reasons for this.

In the first place, there is a very close integration of the three types of response, intellectual, motor, and affective. We are wont to describe a response at any moment as of one of these kinds or another, when, as a matter of fact, we can take almost any segment of behavior and find that all three of them are in some degree involved in it. Unexpectedly meeting an acquaintance and shaking hands with him, for example, is far from a straight-line reaction leading from stimulus (seeing the acquaintance) to response (extending the arm and grasping the hand). In fact, the simplest description must take into account a discharge of impulses into the three fields in a practically simultaneous manner.

Item one, on the intellectual side, is the perception of our friend; but this immediately prompts a flooding of energy into associated cortical areas causing us, if our memory is faithful, to recall his name, when we saw him last, some matters of mutual interest, and the like. If these definite reactions or others like them do not

[14] Thorndike, *op. cit.*, p. 147.

occur, we are at least conscious of a vague beginning of them. But more than this, we must take account of the fact that the original perception does not stand alone but is accompanied or followed by a rapid-fire of perceptions which record numerous details regarding our friend's appearance and manner, all of which set off more or less extended associations. Thus we have a total intellectual response which cannot be looked upon as consisting of items in sequence, nor as items standing separately in a pattern. We have, rather, a pattern in which the items seem to run together into a total functioning and fluctuating system. Percussion points in this system would consist of successive perceptions of our friend's appearance and manner; but from each such perception would spread associational patterns that would go far back of and away from the immediately perceived item. Thus would be drawn in many reverberating impressions from the past. The past would, in fact, rise up and fuse with the present, thus integrating with the present and conditioning the total response.

Among these intellectual reactions would be woven a fluctuating consciousness of states of feeling which might, in this case, include pleasure, embarrassment, hesitancy, and perhaps a bit of humor aroused by our friend's loud necktie. And while this commingling of thought and feeling is going on, we execute various motor reactions appropriate to the occasion. We guide our steps toward our friend, call his name perhaps, and make minor adjustments in response to our own promptings as these are influenced by our friend's

attitude and approach. Thus mutually acting and reacting, we come face to face. Then we shake hands.

The behavior as thus described is very complex, and obviously cannot be confined to the intellectual, motor, or affective plane. It may well be argued that most of our habit performances are far less complex than this. Turning a door knob, for example, or lacing a shoe, would require a much simpler account. It is true enough that the many habits of convenience which we have acquired in our routine experinece show a great economy in the elimination of needless elements; but even here a little thought will show that there is a far greater integration of reactions within the three planes than we commonly suppose. These habits of convenience are components of the total personality; but it is when we face novel, unexpected, resisting, or confusing situations that we display habit compounds of most significance in personality. And it is in these cases that we find the most complex integrations of motor, intellectual, and affective responses.

Returning, then, to our unexpected meeting with a friend, we may search in vain for the one prepotent element standing at the head of a neural chain and leading directly to the handshake. Was it the original perception? Was it the feeling of gladness? Was it the necktie? Was it a welcoming movement on our friend's part? Was it from some quality of shape, color, intent, or use, or from some relation of space, time, likeness, causation, or subordination? Or rather was not the handshake the result—and only one of many results—brought about by the entire situation?

And was not the causal situation composed, not only of the external complex of elements, but rather of those plus the complex of elements within us?

If we admit as much it may seem at first glance that we are destroying the whole habit basis of personality. Further thought will show, however, that we are but refining the description of habit behavior without in any way destroying the association principle which is the essence of habit. It amounts to this, that there are habits within habits; that there are component habits which form the shifting and novel pattern of a present moment. The shifting and novel pattern is, at any instant, a "sum total" in a quantitative sense; but qualitatively it is quite different from a mere sum of the parts, for the reason that we have never experienced the exact situation before. Therein lies its novelty. But novelty is not here to be taken in an absolute sense. It exists in degrees. A situation might be so novel that we would not know how to act and would be confounded. But on the other hand, there might be just that element of familiarity in the quality of the whole which would serve as a cue to action. In other words, we may possess habits of action in response to qualities of situations, just as we may possess habits of response to original items of experience. The *quality* of a situation is a derivative of past experience.

It is important, also, to understand how close an integration knits the objective with the subjective elements of a situation. We are forced to recognize that stimulus and response cannot be regarded as distinctly separate factors standing one over against the other,

and especially is this true in a social situation. As one writer puts it:

> In detail the habit forms of association are such close connections of response patterns and stimuli that not only are the various member reaction systems integrated into a unit, but this pattern as a unit of response appears also to be very closely integrated with the stimulus, so that the whole behavior fact becomes an indivisible unitary process.[15]

Many ancient and modern thinkers, Berkeley, Hume, and Kant among the latter, have demonstrated from varying points of view how futile it is to abstract the objects of the common world from our apprehensions of it, or our apprehensions from the objects of the common world. The world we know is the world as we see it; but the world we see is the world as we know it. The world is not something standing apart and stinging us with its stimuli, causing us to behave as we do. We are not merely a kind of adjusting organism continually adapting ourselves to environmental conditions, for those conditions are always something more than environmental. So far as our cognitions are concerned, they do not stand separate and apart.

The integration of subject and object, or individual and environment, may be viewed from a somewhat different angle. Let us again consider our example of an unexpected encounter with a friend. We may try to say that our reactions in this situation are responses to him as stimulus, or better still, that they are responses to prepotent elements in his appearance and behavior.

[15] J. R. Kantor, *Principles of Psychology*, p. 442.

But it is nearer the truth to say that our behavior toward him results from our perceptions of his behavior and appearance plus the associated thoughts and feelings that arise within us. But just as we must admit this fact, we must also admit that our behavior thus conditioned similarly acts upon him, so conditioning his behavior. We thus have a circular and moving situation rather than a straight-line and terminating situation as the stimulus-bond-response definition of habit would picture it. The actual condition of affairs is thus summarized by Miss M. P. Follett:

1. Behavior is both internally and externally conditioned.
2. Behavior is a function of the interweaving between activity of organism and activity of environment, that is, response is to a relating.
3. By this interlocking activity individual and situation each is creating itself anew.
4. Thus relating themselves anew.
5. Thus giving us the evolving situation.[16]

All these facts of integration and relativity force us, it would seem, to revise our traditional notions of habit behavior. Especially as regards social behavior, we apparently have to accept the proposition that complex responses are to diffused and changing wholes, and not to elements. We get a new view, too, of the function of personality in society, and are able to understand growth, plasticity, and differentiation of the personality in a way hardly possible in a cut and dried psychology. But all these considerations must not blind

[16] M. P. Follett, *Creative Experience,* p. 89.

us to the fact that habits may and do tend toward fixation. This is fortunate and quite evident in the countless habits of convenience which facilitate our routine life. It is also true with regard to numerous habits of emotion or feeling; so true, in fact, as to provide in many cases a basis for neurotic or morbid conditions. And it is assuredly true of numerous intellectual habits. The thought "5" follows almost inevitably upon the stimulus "2 + 3," and such a fixation is indeed convenient. But when a similar fixation occurs throughout one's social, philosophical, moral, and theological standards and values, he is in a bad way.

HABITS IN MORAL AND MENTAL LIFE

Subtle integrations of intellectual habit systems interwoven with habits of feeling afford, for those who are willing to accept them as such, a satisfactory basis for the moral life of man. To elaborate this hypothesis would, of course, lead us to the problem of the ultimate source or nature of the moral sense. This is something hardly advisable in these pages. We may well point out, however, some of the obvious moral implications in the phenomena of habit formation. In this connection the following quotation from Pillsbury is quite to the point:

> The useful man is for the greater part marked off from the useless by the nature of his habits. Industry or indolence, good temper or bad temper, even virtue or vice, are in the last analysis largely matters of habit. One forms the habit of working at certain times of the day, and soon if one is not busy at that time, one experiences a lively sense of discomfort.

Or, on the contrary, one forms the habit of loafing all day. Work then becomes distasteful and indolent irresponsibility is established. Losing one's temper is largely a habit, as is self-control. Each time one is provoked by a trifle, it becomes the more difficult to look calmly at an unpleasant episode; while each time one remains calm under difficult circumstances strength is gained for later difficulties. Similarly, whenever temptation is resisted, virtue gains a victory; when temptation is yielded to, new weaknesses develop. Frequent yielding makes resistance practically impossible.[17]

In a similar vein runs the well-known passage from William James:

The drunken Rip Van Winkle, in Jefferson's play, excuses himself for every fresh dereliction by saying, "I won't count this time!" Well, he may not count it and a kind heaven may not count it; but it is being counted none the less. Down among his nerve cells and fibres the molecules are counting it, registering and storing it up to be used against him when the next temptation comes. Nothing we ever do is, in strict scientific literalness, wiped out. Of course, this has its good side as well as its bad one. As we become permanent drunkards by so many separate drinks, so we become saints in the moral, and authorities and experts in the practical and scientific spheres, by so many separate acts and hours of work.[18]

If we attribute a child's habit of lying to original sin we are guilty of a habit of thought as egregious as his habit of deceit. It is a very easy thing for a child to

[17] W. B. Pillsbury, *Essentials of Psychology* (revised ed.), p. 59.

[18] Any one may read with profit and pleasure James's famous chapter on "Habit," from which this quotation is taken. See his *Principles of Psychology*, vol. i, Chap. iv.

acquire a habit of untruthfulness; and on the other hand it is not difficult, by judicious training and a respect for the sensitive nature of the child, to give him the habit of truth-telling. Since the child is "unmoral," his response to the question, "Who did that?" can hardly be said to be governed by intellect. It is a vocal response to a situation influenced chiefly by habitual emotional responses to the same.[19] The impulses to the vocal muscles prompt a response which experience has taught to be most satisfying or least annoying. With all factors remaining the same, each repetition makes the next one more prompt and sure. Some parents try to eliminate the falsehood response by making it painful through punishment. Others adopt the constructive plan of making the contrary response, truth-telling, habitual by causing satisfactions to adhere to it. A combination of the two methods is of course possible.

The morals of young childhood are extremely naïve, growing more complex with the development of intelligence. Various habits of a so-called moral kind can at this time be implanted. The little child can at a very early age be taught to say its prayers regularly on going to bed, but we can hardly impute to the act any supporting convictions. Habits of clean language; personal cleanliness and hygiene; restraint from tattling; sharing and the like, can similarly be induced.

The direct, simple, and nonintellectual character of moral habits in very young children may be the begin-

[19] Until the child is capable of perceiving the truth-falsehood alternatives, we cannot say that he possesses moral sense. As its intelligence develops, the implications and possibilities of truth and falsehood become more and more complex.

ning of decided moral convictions. The best way to start a child toward a belief in truth is to teach him habits of truthfulness. The best way to encourage in him a belief in good language is to teach him habits of good usage. If you want him to believe in a creed, give him the habits of its forms. This dependence of belief upon preformed habits is not limited to youth, however. A man may vote straight Republican year after year "because be believes in it"; but we wonder to what extent the believing is the result of the voting. And when the drinker and the abstainer take sides on the liquor question we likewise wonder.

One will be quick to see, of course, that beliefs often run contrary to overt habits. Many abstainers are opposed to prohibition and drinkers frequently support it. Religious and political creeds can point to many apostates. The life-long devotee may turn from the object of his worship. But if we could get at the exact psychological conditions in these cases we should no doubt find that peculiar habit integrations upon the motor, intellectual, and affective planes, or shiftings of such integrations, are the basic factors.

The rôle played by habit in our mental life is of tremendous significance. Edman points out the paradox that, while habits are nature's device for facilitating our adjustments by making them mechanical, they at the same time impair and hinder adjustments through reflection.[20] "If we are committed by tradition or habitual allegiance to a protective tariff, we will be concerned in our thinking with details, what articles

[20] Irwin Edman, *Human Traits,* Chap. x.

need protection and how much do they need; the ultimate desirability of a protective tariff will not be a problem remotely concerning us." And similarly with all ingrained beliefs. Once they are entrenched, they become our masters. How many of us are but a bundle of convictions, beliefs established by tradition, training, environment, education! How many minds are but deductive machines, reasoning, when they do think, always downward from the old, unexamined premises! Progress must always depend upon constant readjustment. Who can be so bold as to say that the ultimate truth has yet been discovered in any of the great fields of human yearning and thought? As Bergson maintains, change is the only truth of which we are sure. It is reasonable that God himself is evolving. To keep our little pace, we too, then must change; for as Lowell declares:

New occasions teach new duties; Time makes ancient good uncouth;
They must upward still and onward who would keep abreast of truth!

Education is to be charged with questionable practice when it takes advantage of the fact of habit formation to implant ready-made beliefs in the minds of the young. Certain verities of mathematics and science are immutable, or reasonably so, and a belief in them is a necessary stock in trade for intellectual practice; but in the schools a false analogy is drawn between these and a host of philosophical, moral, and civic principles. These are subject to unending change. Yet

the schools would preserve and inculcate them as they would the truths of mathematics or physics. The beliefs of a class or a majority are given a sanctity which history belies, and the schools are told to stamp them in with the multiplication tables and the law of gravitation.

In the schools we commonly refer to these beliefs as attitudes. They are in reality intellectual and emotional "sets." Many of our fathers have "sets" of long standing, for instance, with regard to England in the Revolutionary War. So strong have these been that they have forcibly resisted the encroachments of critical and truth-finding history. School textbooks have had to be revised, and many of them have been thrown out of school, because they failed to convey the old beliefs. Even to-day, publishers have to provide different textbooks in history for the North and for the South. And yet the truth has gone on, and the beliefs of yesterday are among thinking men no more. So it is throughout the wide fields of human thought. All is change. We must ask with Pilate: "What *is* truth?"

If we have discovered the best in anything, we do not know it. It is the right of each generation to search for itself; but to endeavor to stamp the present into the mind of the future is an arrogance which the schools should resist. If our best is our children's best, it is for them to discover. It is the duty of the schools to teach them the ways of discovery, to give them an intelligence that is equipped for research and not frozen into ordained habits of thought. All thinking people are searching for truth, and will search as long as evo-

lution lasts. In this great seeking, the one basic mental habit that is worth while is that of the open mind. Equipped with this, we need never fear that humanity will move backward, or that the things we cherish will give place to ignoble change.

With the habit of the open mind, we may safely proceed to acquire beliefs that are the product of our own free intelligence. If we *are* intelligent, beliefs are inevitable. But we remain open to reason. We submit to the enlightenment of each new day, and so are able to move with the times. To do this is to keep mentally young, but to permit our mind to be congealed into fixations of belief at any age is to be old.

That habit is at once the conserver and the petrifier of society [says Edman] has long been recognized by social philosophers. There is one habit, however, the acquisition of which is itself a preventive of the complete domination of the individual or the group by hard and fast routine. This is the habit of learning, which is necessary to the acquisition of any habits at all. Man, in learning new habits, "learns to learn." This ability to learn is, of course, correlated with a plasticity of brain and nerve fibre which is most present in early youth. The disappearance of this capacity is hastened by the pressure which forces individuals in their business and professional life to cling fast to certain habits which are prized and rewarded by the group. A sedulous cultivation of the habit of learning, and the encouragement of this tendency by the group are the only antidotes that can be provided against this marked physiological tendency to fossilization and the frequent social tendencies in the same direction.[21]

[21] Edman, *op. cit.*, pp. 37, 38.

CHAPTER III

THE DISTRIBUTION OF TRAITS

Nothing is more obvious than the fact that no two individuals are alike. Nevertheless, there are certain considerations with regard to this patent truth which are of special interest among the phenomena of personality. Taking any large group of individuals, we may be interested to know the nature and extent of the differences prevailing among them with regard to any given capacity or trait; and taking any single individual we may be interested to know the configuration of his various traits. It is also of interest to consider the effect of the social environment upon the distribution of modes of conduct that are especially susceptible to its influence. Some of these matters will be discussed in the present chapter.

INDIVIDUAL DIFFERENCES

In discussing individual differences it is very helpful to use the word "traits." In some quarters objection has been raised to this word, and it has even been declared that there is no such thing as a trait. This criticism has for its basis the phenomena of integration and relativity as described in the preceding chapter. It would seem that to possess a trait, one must have some comparatively stable neural pattern as its ground-

work; but such a groundwork would appear to be improbable when we consider: (1) the diffuse nature of one's reactions to any complex situation, (2) the fact that these reactions are contingent upon the unpredictable and complex nature of the total situation, and (3) the further fact that if the situation is in any sense a social one, it is modified and changing because of our reactions toward it. It is reasoned that in such a circular complexus stability of behavior pattern is out of the question.

In spite of the important measure of truth in this argument, the fact remains that we do possess traits that are fairly predictable in normal life. If a situation is normal, the impulses engendered by it may reasonably be depended upon to flow through their accustomed channels. Impulses will break away from their accustomed channels, however, as unexpected and novel elements enter into a situation. In the case of some people, very slight eccentricities in a situation will cause disruption of the normal behavior pattern; but at the other extreme are those individuals whose behavior will remain stable in the face of the most jarring circumstance. This is to be interpreted, however, in the light of individual differences: the fact that an individual maintains stability in a given trait in a given situation does not necessarily mean that he will maintain an equal stability for any or all traits in all situations. Because a pugilist is courageous in the prize ring, it does not follow that he will be courageous in making a public address. Recognizing all the foregoing conditions, we are none the less justified by com-

mon observation in accepting as a working principle this fact: that with regard to any given trait the great majority of us are sufficiently stable in the normal situations of life to permit a tentative prediction of behavior. If this were not so, we could not speak of a man as modest, patient, honest, gentle, vulgar, sociable, or otherwise distinguishable.

Thorndike in one place defines a *single* trait as "one whose varying conditions in men may be measured upon one scale." [1] This would include such items of response as reaction time to sound, memory of digits, efficiency in giving the opposites of words, efficiency in hitting a target, rate in adding columns, and other unitary and practically irreducible abilities or skills. Traits of a more complex, character-portraying kind are thus defined by F. H. Allport: "We are to regard traits, then, not as elementary psychological mechanisms, but as groups of characteristic (fundamental) reactions based upon native constitution and systems of habit, and selected for observation as exhibiting the typical adjustments of the individual to his environment." [2] Examples given are soundness of judgment, tenacity, characteristic mood, drive, susceptibility to social stimulation.

Thorndike has effectively shown that the combinations of single traits among men are practically limitless. As he points out, "if man's nature included only five traits, *a*, *b*, *c*, *d* and *e*, and even if each of these

[1] Edward L. Thorndike, *Educational Psychology, Briefer Course*, p. 402.
[2] F. H. Allport, *Social Psychology*, p. 102.

existed in only five degrees, 1, 2, 3, 4 and 5, there could be over three thousand (3125 to be exact) varieties of men. With hundreds of traits, each represented by hundreds of degrees, the varieties possible are practically infinite." [3] If this is true with regard to single traits alone, how immeasurably greater becomes the variability among men when we add to our consideration such *multiple* traits as initiative, self-control, vanity, vulgarity, and so on.

Whenever large numbers of individuals are measured in any of the *single* traits, a certain phenomenon of distribution becomes evident. Even if a large group is of the same age, sex, race, social status, and training, it will almost certainly be found that its members vary in the trait pretty much in accordance with the "law of chance." That is to say, if we should measure the trait in units, and lay these off upon a scale from the lowest to the highest, the majority of individuals would cluster about the middle of the scale, and the numbers of them would grade off symmetrically toward the lowest and highest. It is analogous to what would happen if we were to toss ten pennies a thousand times, and record the number of heads each throw. We should practically always find that five heads is the most common throw and that the appearance of no heads and of ten heads, if these combinations occur at all, are the least common, and equally so. Such a chance distribution of scores is represented by the well-known curve of normal probability.

In measuring the strength of any single trait among

[3] Edward L. Thorndike, *Individuality*, p. 5.

the members of a large, homogeneous, and typical group, a wide range from lowest to highest is commonly found. Countless experiments have demonstrated this. An example may be chosen at random from several reported by Starch.[4] He gave a test in which 164 college students were required to cancel *A*'s from a block of print, the score being the number canceled in one minute. The range of performance was from 40 to 90.

Educational writings are replete with data showing the great differences that prevail even in small groups of children of a single school grade. Another study chosen from the source just cited is typical. The facts are presented in the following table, and are based upon careful, standardized examinations given to 36 eighth-grade pupils.

INDIVIDUAL DIFFERENCES IN SCHOOL SUBJECTS

	Best	Poorest	Ratio
Reading—Speed	6.6	1.8	1:3.7
Reading—Comprehension	76.	22.	1:3.5
Writing—Speed	108.	57.	1:1.6
Writing—Quality	90.	60.	1:1.5
Arithmetic—Reasoning	15.	2.	1:7.5
Arithmetic—Addition	15.	1.	1:15
Arithmetic—Subtraction	17.	2.	1:8.5
Arithmetic—Multiplication	17.	1.	1:17
Arithmetic—Division	16.	2.	1:8
Spelling	90.	45.	1:2
Composition	70.	30.	1:2.3
Grammar	13.	6.	1:2.2
History	104.	4.	1:26
Average			1:7.6

[4] Daniel Starch, *Educational Psychology* (1st ed.), Chap. iii.

These wide differences in single or relatively simple traits are significant enough; but in any comparative study of personality a far greater importance attaches to differences in traits of character, temperament, and social behavior. These are superlatively multiple traits involving complex and diffused aspects of behavior, and consequently it is difficult if not impossible to measure them on scales yielding standard arithmetical scores.[5] There is no doubt, however, that if this were possible we should find the same wide variations that we find in the case of single traits.

The complexity which characterizes these traits of character, temperament, and social behavior is very greatly enhanced by the fact that no one of them is ever manifested twice in exactly the same situation. In measuring what we call single traits it is usually possible to create a good experimental situation. If we want to test a person's ability to discriminate differences in shades of color, for example, we may take him into a quiet room, let him sit down, and then enlist his attention to our simple procedure. And we may safely assume that his reaction to our test is fairly indicative of what it would be in any normal situation requiring discrimination of color. And we can trust likewise in the measurement of any other single trait, providing the individual is in a normal state at the time of the test. But when it comes to a multiple trait we lose all these advantages. A multiple trait is always a response

[5] Certain tests have been devised for measuring some of these traits in restricted and artificial situations. A few of these are described in the chapter on Measurements of Personality.

to a multiple situation. We may create a situation to test a child's trustworthiness, for example, and on the basis of results may attempt to predict his trustworthiness in the same kind of situations. But the situations in life that demand this trait are seldom of the same kind. They vary extremely, notwithstanding that they all possess a certain common moral element. And as they vary they necessarily present all sorts of conditions that must influence the diffuse intellectual, motor, and affective reactions of the individual.

What we do not know about an individual is the extent to which these various contributory conditions will severally or collectively sway him from a constant course. What we do know is that each individual will be peculiar in this respect. There seems, however, to be justification for saying that, as personality develops, one becomes less and less susceptible to the irrelevant factors in a situation; and so moves toward a wider constancy within the scope of a trait.

There is one trait, regarded by some as single and by others as multiple, which has in recent years been reduced to rather exact and consistent measurement. This is the trait known as general intelligence. The tremendous differences in this trait that obtain among the population at large have always been a matter of common observation. The presence of the feeble-minded and the genius side by side have been evidence enough. But the results of scientific intelligence testing have brought the matter to a clear and startling definition.

The most striking proof showing the extreme differ-

ences in intelligence was obtained during the World War, when over a million and a half of men in the American army were given the army alpha examination. While there is much dispute as to the interpretation of the results, there can be no doubt as to their demonstration of a vast range of differences in mental ability. There were 212 questions in this examination, and each correct answer netted one point. The results are summarized in the following table:[6]

DISTRIBUTION OF ARMY ALPHA SCORES

Scores in Points	*Per Cent of Men*
0- 14	3
15- 29	12
30- 44	15
45- 59	16
60- 74	13
75- 89	11
90-104	9
105-119	7
120-134	6
135-149	4
150-164	2
165-179	1.3
180-194	0.5
195-212	0.2

These facts of differentiation among men, here so briefly stated, are of very great social and pedagogical importance. All men, so far as their legal or spiritual status is concerned, may be "created equal"; but in intellectual and physical capacities, moral potentiali-

[6] From Robert S. Woodworth, *Psychology, A Study of Mental Life,* p. 279. It is probably true that the army tests did not measure *native* mental ability, but intelligence as conditioned by educational environment. See the discussion in Chap. ix of this book, pp. 250-52.

ties, and possibilities for character development, their differences cover an extreme range. It has truthfully been said that there is much less difference between the human idiot and the ape than there is between the idiot and the genius. A separate branch of psychology dealing with individual differences has developed. It is the most potent factor in present-day school reorganization, placing an insistence upon the adjustment of teaching and of school opportunities to the personalities of the children. In the industries, it is bringing about a reformation in the selection and placement of personnel. Even in criminal jurisprudence, ingrained differences in moral responsibility are coming to be recognized, and a qualitative in place of a merely quantitative notion of justice seems to be arising.

CAUSES OF INDIVIDUAL DIFFERENCES

Thorndike summarizes the causes of individual differences in mental traits as follows:

> The ability possessed by any individual in any mental trait is the result of (1) his original nature, (2) the extent to which his original tendencies have matured by mere inner growth, and (3) the circumstances of his life and training. His original nature is determined partly by sex, partly by his remote ancestry or race, partly by his near ancestry or family, and partly by the unknown causes of variation whereby children of the same parents receive differing inheritances. We have then to study the influence of *sex, remote ancestry, near ancestry, maturity* and *environment.*[7]

[7] Edward L. Thorndike, *Educational Psychology, Briefer Course*, p. 340.

The summary refers specifically to mental traits, but we may take it as applying to personality traits in general. For our purposes we may simplify the problem by considering the influences of sex, race, near ancestry, and environment.

If we are to consider sex as a basic factor we shall be obliged to undertake a difficult abstraction, for it will be necessary to subtract from it all influences of training. The familiar differences in the behavior of the two sexes are no doubt due largely, and perhaps chiefly, to differences in training. Beginning in early infancy, boys and girls are subjected to quite different influences, not only from members of their family, but from society at large. There are differences in the way they are handled and fondled as babies, in the things that are approved and disapproved as they mature, in the ways of dress, in the ideals inculcated, in the set standards, in the objects with which they are surrounded, in the goals encouraged, in the devices of training, and in a thousand other environmental influences. In trying to estimate the actual influence of sex *per se*, we have to deduct all of these.

As far as the evidence goes, there would seem to be but a few outstanding differences due to the sex factor alone. These must be attributed to the opposing physiological functions, and are observable in those attitudes which arise out of the purposes of nature. In comparing the traits of the two sexes, however, no practical need is served in trying to eliminate environmental influences. In actual life we do not find women or men innocent of their peculiar training. Our interest is in

taking them as they are and making a comparison of traits.

Taking men and women as they are, then, we do find that on the average, men are stronger, taller, and heavier than women; they are on the average more masterful and self-reliant than women; they are on the average more practical and vocationally purposeful than women, and on the average they are less given to the little refinements of toilet and deportment than are women. These and other fairly common differences that seem to mark the average woman from the average man may, for our present purposes, be taken for granted. Let us turn at once to a comparison of some of the more important traits of social and intellectual life.

The first of these traits to invite comparison is native intelligence. The dominance of men in the higher intellectual and administrative pursuits and in the realm of actual genius has led to a long-established popular belief in the general superiority of men in mental capacity. This belief, however, has suffered a severe blow since the intelligence tests have come into the field, for by means of them it has been established beyond a doubt that men and women are equal in intellectual capacity as far as we are able to judge by comparing the average performance of females in these tests with that of males. The same evidence is given by a comparison of performances in the various school subjects. As evidences from all tests accumulate we are more and more impressed with the practical equality. This equality maintains, apparently, not only in general in-

telligence and general scholastic ability, but in specific mental functions such as perception, memory, and reasoning, and in specific scholastic subjects such as arithmetic, language, and history. The slight differences that are occasionally found are extremely insignificant as compared with the great variation prevailing among the members of either sex taken by itself.

In regard to emotional, temperamental, moral, and social differences between the sexes, many and various views have been advanced. The great difficulty in determining these matters lies in the fact that we are so imperfectly equipped with reliable, objective means for measurement. Popular opinion is worthless because of the innumerable influences of prejudice, preconceived ideas, chivalric notions, a double standard, and the like. Many careful and serious efforts have been made to secure trustworthy judgments from common acquaintances of an experimental group, and to average these judgments. This method is recognized as far superior to popular opinion, but it has several weaknesses as a scientific procedure. However, the accumulated evidence of such experiments seems to point again to a strong tendency to equality. At least it may be said that the parity of the sexes in these traits is much more striking than are the differences.

In a study of differences due to race the problem is similar to that in the case of differences due to sex. The influences of training and environment are extremely difficult to eliminate. The only obvious differences of a social or moral character are beyond a doubt the result of training and other environmental condi-

tions. If we could get rid of the physical and environmental traits it is doubtful if there would be anything left to set a Chinaman off from an Englishman or a Hindu from an Italian. We are probably justified in saying, by way of inference from numerous and conflicting investigations, that the civilized races are on a parity except for the types of traits mentioned.

Statements such as this are, it must be admitted, most vigorously challenged. Madison Grant and Carl C. Brigham, among others, have published studies claiming a decided superiority for the Nordic race.[8] These studies have precipitated an acrimonious controversy involving technical and historical details too numerous to be gone into here.[9] Grant bases his study chiefly upon historical facts, declaring that the Nordics are superior because they are, "all over the world, a race of soldiers, sailors, adventurers, and explorers, but above all, of rulers, organizers, and aristocrats," thus sharply distinguishing themselves from other racial stocks. Brigham treats the problem by analyzing the results of the intelligence examinations given in the American army, and concludes that of the three great racial stocks of Europe, the Nordic is intellectually superior, the Alpine standing second, and the Mediterranean lowest.

The great criticism of these studies is that they fail to control successfully the environmental factors. In

[8] Madison Grant, *The Passing of the Great Race;* Carl C. Brigham, *A Study of American Intelligence.*

[9] Many of these are discussed in the interesting debate between L. M. Terman and Walter Lippman, published in the *New Republic,* irregularly, Oct. 25, 1922 to Jan. 3, 1923.

Grant's study it is impossible to eliminate the mighty influences of racial habits, geographical conditions, and education. In addition to these considerations, Brigham's work is open to this serious criticism: that the immigrant stocks in the American draft are not necessarily representative of their race as a whole. In fact, there is reason to believe that, by and large, they comprise an inferior selection.

When it comes to certain races that are uncivilized in their native state, the evidence points more strongly to the conclusion that, upon the average, they are intellectually inferior to the dominant races. In the case of the Negro in the United States, including people with a large admixture of Negro blood, numerous careful studies seem to demonstrate an average inferiority in native intellectual capacity. This is far from saying that every Negro is inferior to every white in respect to this trait. It means merely that the median Negro is below the median white, with a large overlapping. Only the most highly gifted whites can boast that no Negroes are intellectually superior to them.

Throughout these considerations of difference due to sex and race the factors of heredity and environment are deeply involved. As a matter of fact, sex and race are but special cases of heredity, for both are inherited. But we have seen that in any experimental situation the environmental factors are so interwoven with the hereditary, so far as psychological, moral, and social traits are concerned, as to make clear-cut distinctions difficult and doubtful. This state of affairs, so clearly recognized by careful experimenters, does not seem to

weigh when laymen debate the popular problem of heredity versus environment; and as a result fallacious notions prevail.

Both scientists and the general public too commonly make the assumption that either heredity or environment may be abstracted out of the total situation in a study of personality, and studied as something standing alone. As a matter of fact, however, this assumption is quite unwarranted. There is such a thing as heredity, to be sure, and such a thing as environment; but their product, personality, is a third order of expression which emerges from the interaction of the other two. It is something new and generically different. We cannot say that it consists of so many parts of heredity and so many parts of environment any more than we can say that the driving of a nail consists of so many parts nail and so many parts hammer.

We must say, then, that heredity, like environment, is an engendering source of personality rather than a constituent of it. Recognizing this fact, there is none the less great justification for the emphasis upon heredity that so characterizes modern thought. Differences in emotional susceptibility, for example, must be due in part to inborn facilitation along the nerves leading to the organic sources of emotion. So far as the ductless glands regulate personality, heredity must often be responsible for it. Inherited facilitation for neuro-muscular coördinations must largely be responsible for certain talents, such as musical performance, drawing, dancing, or delicate mechanics. In general intelligence we are forced to attribute to some deep and

rather mysterious heredity factor a due share of influence. Heredity, of course, plays a strong part in determining the organic, chemical, and neural economy of the whole organism, thus influencing the supply and transmission of energy, and the general health.

As regards the inheritance of talents, many studies have been made but much is yet to be learned. The perfectly obvious statement may be made, that talents are heritable to the extent that they depend upon unit traits that are heritable. Such traits would be those that depend upon a specific, physical medium, and would be found, probably, in motor activities such as drawing and musical performance. It cannot be admitted, however, that the intellectual aspect of a talent is heritable. If it were so, it would mean that definite parts of the cortex are predestined by nature for specific intellective functions. That is the reason why the inheritance of mathematical talent, as such, is very doubtful: it would mean that we inherit a cortical area that is specialized by nature for mathematics. For the same reason it is impossible to admit the inheritance of prescribed moral traits.

Whatever predisposing factors heredity may contribute to the personality, they can only be interpreted as relative to the multitudinous chances and circumstances that mark the individual's peculiar experience. Assuming that two individuals were born with exactly the same heredity, they would nevertheless develop differently because they could never have exactly the same environment;[10] and conversely it may be said that if

[10] The mere fact that two individuals have been born and brought

two individuals could by a miracle experience the same environment, they would be different because of differences in heredity. A person not too handicapped may, through the influence and training of a favorable environment, develop a very effective personality; while, on the other hand, a person highly favored by heredity may, through wrong training or discouraging environmental conditions, become a nonentity or worse.

We cannot, of course, press the saving grace of environment too far. Sentimentally regarded, it may become but a "balm for hurt minds." Inherited limitations often impose too great a barrier upon the individual for any training to make much of him. And, on the other hand, the highly endowed individual possesses every advantage that would enable him to surmount the obstacles of an ordinary environment. The actual outcome in any case is that unique mode of expression which we call personality.

CORRELATION OF TRAITS

Having considered the problem of the distribution of traits among people in the mass, we may now turn to some questions relative to the distribution of traits in a single individual. Briefly, we are interested in knowing whether or not there is any harmony or system in the organization of one's traits.

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up together does not mean that they have had the same environment. The *effective* environment in any individual's case consists of those objects and influences that have become integrated with his experience, and is conditioned by the way in which they have become integrated. There is no chance of these conditions being the same for two individuals.

Earlier in the chapter it was pointed out that any segment of behavior is a complex and circular affair in which individual peculiarities and unpredictable elements operate against stability. As has been pointed out, no two situations are ever exactly alike, and they are frequently very different. We might reasonably expect to find, therefore, that inconsistency is the rule with regard to the manifestation of any given trait in an individual's behavior. And as a matter of fact, we often observe such inconsistency. A person who is sociable in one situation is not necessarily sociable in all situations. Nor because he is brave, industrious, humorous, unselfish, enthusiastic, or ambitious at any given time and place can we confidently predict that he will upon all occasions be equally so. The most sociable man will at times grow peevish, the bravest will hold back, the most ambitious will lose his enthusiasm, the most dependable will flunk on the job. A man's courage may be greater at morning than at night, greater when he is filled than when hungry, greater in the midst of success than in failure, greater when stirred with an ideal than when not.

These are matters of common observation, and if accepted as the rule must force us to abandon all attempts to describe an individual by attributing any extensive trait to him. Common observation tells us, however, that while these inconsistencies do exist, they do not spell a general rule but are rather in the nature of exceptions. Taking human nature by and large, we are rather forcefully impressed with the fact that a brave man is generally brave, a sociable man generally

sociable, a selfish man generally selfish, and so on. This is very likely due to the fact that a man learns to react in a certain way to the abstract significance of a general situation, and will normally so react providing he is not disturbed by novel, unforeseen, or distracting elements. As was pointed out earlier in the chapter, the development of personality seems normally to be correlated with a decreasing susceptibility to these disturbing or novel elements. A certain amount of consistency emerges in spite of diversity; and so we are able to say with some truth of a man that he is generally good, medium, or bad; or high, average, or low; with respect to any trait.

An interesting problem in the study of personality arises when we ask whether there is any tendency to correlation among diverse traits. Is there sufficient consistency in human nature to permit the assumption that a person who stands high in one desirable trait will stand high in others; or that average or low rank in one means a somewhat similar ranking in others?

Experiments in this problem are facilitated by the use of a mathematical formula which yields a "coefficient of correlation." [11] This may be illustrated by assuming an experiment in which we try to determine whether there is any relationship between ability to add and ability to spell. We select a large group of children, say fifty, all of them being products of an equal amount and kind of instruction, and all of about the same age. We give these children a uniform test in

[11] The Pearson formula is commonly used. See any good textbook on statistics for its elaboration.

spelling and one in addition, thus getting a score in each test for each child. Now by comparing scores we might find, theoretically, that the highest in ability to spell is the highest in ability to add; that the second in ability to spell is second in ability to add, and so on, each child ranking the same in each test down to the last child, who is poorest in both. Such a perfect correlation is commonly expressed, in such a study, by the coefficient + 1; while a directly contrary correlation—that is, one in which the relationship is reversed, so that the highest in one is the lowest in the other, etc.—is expressed by –1. That relationship falling halfway between these two extremes would be expressed by the coefficient 0, and would represent just that neutrality which would obtain between the two traits in a purely chance relationship. A coefficient of +.50, then, would indicate a considerable tendency toward correlation, namely, halfway between chance and perfection. Any plus correlation means a *tendency* toward positive relationship—an indication that there is something common in the two traits.

With the significance of the coefficient of correlation in mind, we may now turn to some typical studies of the relationship between traits or abilities. In interpreting these, however, it is always to be understood that none of them is final or determinative. The validity of these experiments is always open to more or less doubt because of technical reasons, or because the measures used may not be accurate, or because environmental factors may not have been controlled.

Many studies of correlation among abilities in school

subjects have been made. These almost uniformly show a strong plus relationship. The following table presents the results of a study made by Starch in 1913.[12]

CORRELATIONS AMONG ABILITIES IN SCHOOL SUBJECTS

Subjects	*Correlation*
Arithmetic and language	.85
Arithmetic and geography	.83
Arithmetic and history	.73
Arithmetic and reading	.67
Arithmetic and spelling	.55
Language and geography	.85
Language and history	.77
Language and reading	.83
Language and spelling	.71
Geography and history	.81
Geography and reading	.80
Geography and spelling	.71
History and reading	.67
History and spelling	.37
Reading and spelling	.58

Rugg, in reporting an extensive study of 326 college students, found the following plus correlations between performance in the subjects indicated.[13]

Mathematics and descriptive geometry	.70
Mathematics and modern languages	.50
Mathematics and English	.40
Mathematics and shop practice	.44
Mechanical drawing and shop practice	.44

A large number of studies similar to the foregoing have been made in which the ranking of children in general intelligence, as determined by an intelligence

[12] Starch, *op. cit.*, p. 56. Many similar studies do not show correlations so high as these.

[13] H. O. Rugg, *The Experimental Determination of Mental Discipline in School Studies*, p. 93.

test, has been compared with their ranking in school subjects. All such studies show a strong general tendency to correlation, notwithstanding that special interests and aptitudes, together with temperamental peculiarities, enter as strong factors in the results.

When it comes to a comparison of rankings in those multiple traits of personality which cannot be measured upon an objective scale, we are forced to adopt the dubious method of personal judgment. The table shows an investigation by Dickson, giving correlations between certain personality traits and mental capacity as measured by an intelligence test.[14] The experimental group consisted of 150 children in the first school grade.

CORRELATION OF TRAITS WITH GENERAL INTELLIGENCE

Trait	*Correlation*
Sense of humor	.58
Initiative	.53
Persistence	.53
Will power	.50
Conscientiousness	.48
Social adaptability	.47
Leadership	.44
Personal appearance	.44
Cheerfulness	.43
Physical self-control	.42
Courage	.39
Dependability	.38
Self-expression (speech)	.37
Popularity among fellows	.34
Emotional self-control	.29
Unselfishness	.29
Speed	.28
Average	.42

[14] Quoted from A. I. Gates, *Psychology for Students of Education*, pp. 479, 480.

Studies such as the preceding are always liable to misinterpretation if one is in the habit of hasty generalization. It must be remembered, also, that the traits themselves are but abstractions, and not actual and persistent units in the personality. The figures merely mean that in this large group of children there was a moderate tendency for each individual to rank the same in the various traits as he did in intelligence. An average plus correlation of .42, while fairly high, permits many individual variations. This is to be borne in mind in interpreting the table presented below, in which results are summarized following a study of correlations among a large number of personality traits. The experimental group consisted, in this case, of 450 high-school seniors, all of whom were graded in the various traits from a composite of teachers' judgments.[15]

CORRELATION OF TRAIT WITH TRAIT

Traits	Regularity—Persistency	Trustworthiness	Sense of Accuracy	Self-Confidence	Initiative—Aggressiveness	Respect for Authority	Coöperation	Force of Personality	Capacity for Leadership	Quickness of Thought	Control of Attention	Retentiveness of Memory
Regularity—Persistency ..		.79	.75	.49	.55	.72	.63	.49	.41	.64	.75	.71
Trustworthiness			.79	.47	.56	.77	.68	.55	.46	.64	.77	.69
Sense of Accuracy.....				.64	.66	.67	.69	.61	.56	.79	.78	.79
Self-Confidence					.80	.42	.59	.70	.68	.74	.58	.67
Initiative—Aggressiveness.						.53	.72	.77	.78	.77	.67	.72
Respect for Authority							.71	.52	.44	.53	.70	.63
Coöperation								.74	.73	.67	.67	.68
Force of Personality.....									.83	.74	.66	.65
Capacity for Leadership...										.70	.60	.60
Quickness of Thought....											.77	.82
Control of Attention.....												.82
Retentiveness of Memory..												

[15] The study was made by W. Hardin Hughes, and is reported by him in the *Journal of Educational Method,* June, 1925.

Large numbers of studies such as those given above have been made, and while they vary considerably in the actual amounts of correlation, practically all of them demonstrate that there is a rather strong tendency for individuals to fall into levels with regard to desirable traits. It is true, nevertheless, that striking strengths and weaknesses will stand out upon the profile of almost any one's personality. Such high and low points are bound to develop as a result of training and environment. Motives, drives, and interests, for example, will necessarily follow specialization of experience. We do not find people equally interested or apt in politics, housekeeping, and ornithology. We become very specialized in our interests, and we naturally favor and develop the capacities that serve them. Other capacities are neglected. Hence arises the fiction that the capacities themselves are greatly differentiated. We must also bear in mind the inconstancy that must persist in the case of any multiple traits. Because a person shows some trait in our limited observation of his behavior does not prove that he will demonstrate that trait in all types of experience.

Summarizing the whole matter of correlation, it may at least be said that we must abandon the old notion of compensation, which assumed that since Johnnie is poor in arithmetic, he must possess literary ability; that since Mary is a poor student, she must naturally be efficient in sewing or housekeeping; that since James so dislikes science, he must be artistic. These are expressions of parental fondness and not of fact. In the same connection, Gates remarks:

Studies of correlations of human traits early disclosed the fallacy of the prevalent belief in compensation—the assumption that the possession of certain desirable traits implied the presence of compensating undesirable characteristics. To illustrate: It was frequently asserted that the quick learners retain poorly, that the rapid workers were inaccurate, that great knowledge went with slow wit, that men of great artistic ability—as in music, painting or literary compositions —were usually stupid in practical matters, that scholarly minds were encased in clumsy bodies, that superior intellects were usually coupled with inferior mental stability. To the extent that various desirable traits have been measured, the facts generally favor the theory of positive correlation, rather than of negative correlation or compensation.[16]

CONVENTIONALITY

Thus far studies in the distribution of traits, both among people at large and within the individual as a unit, have been based upon the assumption that traits are, within limits, measurable. It has been maintained that such measurement is roughly practicable, notwithstanding the relativity that so intricately pervades human behavior and unites it with the social whole. This relativity imparts to all behavior a qualitative aspect which is different in kind from the quantitative. Granting the value of studies in quantity or strength of traits, we are after all more interested, so far as personality is concerned, in the way in which the traits manifest themselves—in the manner or color or aspect of the performance itself. Each one of us is a creature of modes and moods, of lights and shades, of nuances

[16] Gates, *op. cit.*, p. 478.

and scintillations. Two individuals might be equal in actual strength of doing, in a given situation, and yet quite different in the spirit and the motive of it. One individual might be equal to another in loyalty to a cause, and yet go about its purposes gay and debonair while the other bears a somber mien. Of any pair of individuals it might be found that while quantitatively equal in intelligence, one is a Presbyterian, a classicist, and a Republican, while the other is an agnostic, a futurist, and a Bolshevik.

It is true that these qualitative aspects of personality do not submit themselves to formulation as the quantitative ones do; but at the same time there are certain principles which tend to regulate their distribution in the population as a whole. People are not free to vary as they will upon the qualitative side. Despite a great diversity, there is a very strong tendency to uniformity. There is an actual force that bears upon each individual from all directions, like the atmosphere, endeavoring to bend and compel him to a mode that society ordains.

Seeking the satisfaction of our natural desires, and guided only by our native impulses, we are at birth impelled into our environment. This consists of all the material and natural surroundings that enter our experience, of all the influences from other people, of all the ideas and ideals that reach us, of all the training and culture directly or indirectly given us. Much of our environment is adventitious and undirected; yet very much of it is deliberately or unintentionally directive. Of this latter aspect of environment, major rôles

are played by institutional education, customs, traditions, conventions, proprieties, codes, and established beliefs and attitudes. All of these are the molded convictions of the society in which we live. But they are not and never can be the convictions of any extreme element in society. Quite the contrary, they are always the convictions of the great middle group of people who represent and determine the mode. Our standards are inevitably set by the average.[17]

All these instituted conditions of life conspire to fit the individual to their patterns. They press upon every radical manifestation of individuality with a great weight, always forcing it down to make it harmonious with the mode. And they have deadly weapons with which to accomplish their purpose. The smile of contempt, the whispered word, the meaningful nod are but the small arms of their battery. Scorn, derision, ostracism, reprimand, and even visitation by masked bands, are in the armament. And for the major infractions is reserved the artillery of legal procedure in awe-inspiring array.

The deadly monotony of "Main Street" is due to the tyranny of convention, for in the small town one cannot hide from its serried forces which jealously guard the minutest proprieties. But even in the great white ways, manners, deportment, dress, affiliations, expres-

[17] It is true that the great middle group is very much influenced in its more important convictions and standards by leaders. Mazzini recognized this when he defined democracy as "government of all through all, under the leadership of the wisest and the best." Actual practice, however, drags behind the leaders. This is strikingly evident among us Christians.

sions of belief, succumb in greater or less degree to modish fixation.

Dewey has pointed out most effectively how the whole education of the young is so directed as to make them conform with the established modes. He says in part:

> Among the native activities of the young are some that work towards accommodation, assimilation, reproduction; and others that work toward exploration, discovery and creation. But the weight of adult custom has been thrown upon retaining and strengthening tendencies toward conformity, and against those that make for variation and independence. The habits of the growing persons are jealously kept within the limit of adult customs. The delightful originality of the child is tamed.

And he points out how this education implants habits of thought corresponding to the induced habits of behavior.

> Very early in life sets of mind are formed without attentive thought, and these sets persist and control the adult mind. The child learns to avoid the shock of unpleasant disagreement, to find the easy way out, to appear to conform to customs which are wholly mysterious to him in order to get his own way—that is, to display some natural impulse without exciting the unfavorable notice of those in authority. . . . These habitudes, deeply engrained before thought is awake . . . govern conscious later thought." [18]

It is hardly excessive to say that if the molding and formative environment had full sway, differentiation

[18] John Dewey, *Human Nature and Conduct,* pp. 97, 98.

that makes for individuality would in large measure disappear. Conformity to mode would be the rule. And in fact we find the completeness of this very thing approximated in many impeccable individuals who are never known to break or transcend a convention of law, morals, or etiquette. Whether it be due to their fear of the censorious eye, their reverence of codal authority, or their exemplary training, they are perfect—and perfectly flat.

Indeed, a high premium is placed upon conformity. It determines a man's qualification for many offices of dignity and trust. Given a good endowment of intelligence and character, and a man's availability as school superintendent, bank president, head of a college, or mayor of a town depends upon his capacity to function with modal smoothness. He must be counted upon never to do a thing nor utter a belief nor wear a necktie that the mass mind would not approve of. If he does, he will "get in wrong," or land in jail, or mount the pedestal of fame.

It would be foolish either to condemn this repressive force of conventionality as wholly malignant, or to praise it as wholly beneficent. It is neither. In matters of fundamental morals and other wholesome social practices it is an invaluable agent. But as a fetish that constricts self-expression, stifles spontaneity, fosters hypocrisy, and supplants judgments it is to be deplored.

The score would be nearly balanced if the same force that tends to level the over-assertive expressions down to the mode would also, in some large way, tend to lift

the weak ones up to the common level. But weak traits may be due to weak native capacity or impulse, and public opinion cannot alter these. Or weak traits may be the expression of ineffectual habits of behavior and in the case of these society is not sufficiently concerned to use its weapons. Strong characteristics, regardless of any philosophical distinction of "good" or "bad," are the ones that threaten to turn society from its grooves, and consequently incur that antagonism which seeks to blunt or deflect or curb them; but weak and innocuous characteristics involve no such social threat, and consequently escape the active devices of suppression.

In the matter of weak characteristics, it might be observed that their negativity may be measured by the degrees they are removed downward from their norm. To say that a person is negative paradoxically gives him more individuality than one who stands squarely upon the node, for his very negativity makes him different and he stands out as timid, unassertive, vascillating, or without a mind of his own.

CHAPTER IV

INSTINCT: TYRANT OR GHOST?

The word "instinct" is much abused. In general literature and common speech many liberties are taken with it. The presumption seems to be that it carries a license as a noun of public utility. Writers and teachers in the psychological field find this violation of a technical term rather annoying, and they are wont to employ words of reproof for those who carelessly use it. There is some irony, however, in the fact that the psychologists themselves are frequently guilty of a considerable amount of vagueness and inconsistency as to the meaning of instinct; and even among those who clearly and consistently adhere to one conception or another there are some radical differences that must seem bewildering to the casual student.

We cannot consider the problem of the instincts in its relation to personality without first clearing the situation, and to do this we must try to define the differing points of view.

INSTINCTS AS VITAL FORCES

Whatever the instincts are, they are lodged in man's original nature. All original nature is, of course, instinctive, and consequently any list of instinctive ten-

dencies must include all the simple reflex acts, the original emotions, the physiological processes, and the native reactions of the brain. These activities, however, are not what people commonly mean when they speak of the human instincts. They have in mind, rather, tendencies or drives leading to more or less complex types of behavior which seem to be common to the race, such as curiosity, pugnacity, gregariousness, flight from danger, food-getting, sex activities, and several others.

We shall later inquire whether these types of behavior are in fact instinctive. At present let us state what seems to be the popular notion concerning their origin. They are racial memories, it is often declared, which go back to pre-man and even further in their genesis. They have become stamped in the nervous system, it is said, or implanted in some psychical background of our being. Figuratively, they are described as lessons which the race has learned in its age-long experience; as the essence of all the wisdom garnered through thousands of centuries of struggle with physical environment and with human and animal foes, and through an immemorial period of tutoring in the values of communal effort. In a still deeper sense they are regarded as immutable laws of race preservation molded in biological characters within the organism.

In the literature dealing with these racial traits, we are frequently struck with a peculiar duality which many writers fail to treat as such. The one aspect of this duality is pure *impulse*, and the other is *mechanism*. That is to say, each instinct seems to be or to

possess a specialized kind of force or striving, and at the same time it is capable of definition as an organization of neurone structure having a special function. It is commonly assumed that an instinct may be one or the other or both of these; but clearness demands a consistency of language which too frequently is not observed. We cannot convincingly employ a fluctuating terminology which at one time means instinct as impulse, at another time means it as mechanism, and at still another time means some vague combination of the two.

A refreshing, but, as we shall learn, doubtful conception of instinct as impulse is that of the English psychologist, McDougall.[1] The influence of this writer upon recent thought has been pronounced, and we may well consider his position as typical of the school of impulse psychology. Others who have recently produced influential works in which they have applied the same principle to special fields are Veblen in his *Instinct of Workmanship*, Helen Marot in her *Creative Impulse in Industry*, and Trotter in his *Instincts of the Herd in Peace and War*. Various writers have attempted to justify war upon the basis of a fighting instinct; and of great importance is the work of Freud, which is constructed upon the conception of a fundamental procreative urge.

The background of McDougall's view is a philosophy of creative activity which looks upon mind as a channel through which the progressive purpose of

[1] Embodied chiefly in his *Social Psychology* and his *Outline of Psychology*.

evolution expresses itself. This purpose of creativeness he holds to be on a plane which is above or apart from the physical, and to pervade all human and animal behavior. It is the vital energy of all animate nature, the moving principle behind birth and life and change. And indeed the reality of this principle would seem to be the most obvious thing in our universe, testified to by the ubiquitous and persistent phenomenon of birth, by the fecundity of the productive seasons, the insistence upon life of all animate things from the tiniest bacterium to man, and the universal activity of all toward the end that its kind shall be produced. To this principle McDougall applies the adjective "hormic," which is from the Greek word "horme" and means a "vital impulse or urge to action." In adopting the word he states that he is following the suggestion of the English writer, T. P. Nunn. The hormic energy is taken to be workably equivalent to Schopenhauer's "will to live," Bergson's *élan vital*, and Jung's *libido*.

From Nunn's explanation of the hormic theory, we take the following illuminating paragraph:

> Are we, since our bodies are "matter," to seek in physical laws an explanation for the whole of life; or are we, since our bodies are alive, to interpret their activity by what we know of life where its character appears in the highest and clearest form—namely, in the conscious life of the mind? . . . The animal's life is, of course, permeated (as human physiology is) by chemical and physical factors; but just as a poem, though permeated by grammar, is more than a sum of grammatical expressions, so the behavior, even of a protozoan, escapes beyond the conception of a physico-chemical machine.

In short, the humblest creature is autonomous. . . . Stupendous as the distance is between the lives of the protozoan and the creatures who have been made a little lower than the angels, it consists—like the difference between a village church and a cathedral—not in any radical unlikeness of the essential features, but rather in the differing richness, variety and subtlety of the details in which a single scheme has been worked out at different evolutionary levels.[2]

Taking his departure from this philosophical conception, McDougall works out his theory of the instincts.

I hold that instincts are differentiations of the *élan vital,* by means of which it pushes along diverging paths, creating by their energy the various great families of the animal kingdom, each animated by the great instincts common to all; the tendencies to seek food and to reproduce their kind; each also animated by special instincts characteristic of the group; each creating for its own service the bodily organs and nervous structures best suited to serve it as an instrument by means of which it may serve the satisfaction of its conative impulses.[3]

In McDougall's view, then, an instinct is an expression of creative impulse which takes the form of a specific urge or drive. It is not continuous in the sense that it is always operative, but lies ever ready and in reserve for the moment when a situation arises which acts as a key to unlock it. (The figure is his.) Once liberated by the stimulating situation, it acts as an

[2] From T. P. Nunn's *Education—Its Data and First Principles,* quoted by William McDougall in his *Outline of Psychology,* p. 72.
[3] *British Journal of Psychology,* vol. iii, p. 259.

energy which sets in motion all the native or learned acts of behavior which are contributory to its purpose in the face of that peculiar situation. According to this view the instincts are the springs of action, and all our habits and habit systems are their servants. Whatever we have learned has been directly or indirectly in response to the instincts. A famous passage of McDougall's sets forth this point of view:

> The instincts are the prime movers of all human activity; by the conative or impulsive force of some instinct, every train of thought, however cold and passionless it may seem, is borne along toward its end, and every bodily activity is initiated and sustained. The instinctive impulses determine the ends of all activity and supply the driving power by which all mental activities are sustained; and all the complex intellectual apparatus of the most highly developed mind is but the instrument by which these impulses seek their satisfactions, while pleasure and pain do but serve to guide them in their choice of the means. Take away these instinctive dispositions, with their powerful impulses, and the organism would become incapable of activity of any kind; it would lie inert and motionless, like a wonderful clockwork whose mainspring had been removed or a steam-engine whose fires had been drawn. These impulses are the mental forces that maintain and shape all the life of individuals and societies, and in them we are confronted with the central mystery of life and mind and will.[4]

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[4] McDougall, *Outline of Psychology*, p. 218. The passage also occurs in McDougall's earlier work, *Social Psychology*, and he there includes a phrase inferring that the conative or impulsive force may inhere in "some habit derived from an instinct." He now omits the phrase because of his conclusion that "motor habits are not in themselves springs of energy or 'drives.'" He admits, also, that the

These instincts, which are so all-important in McDougall's conception of human nature, are named by him as follows: the parental or protective instinct, the instinct of combat, that of curiosity, the food-seeking instinct, and those of repulsion, escape, gregariousness, sympathy, self-assertion, submission, mating, acquisitiveness, constructiveness, and appeal. He also recognizes certain minor instincts, including laughter.[5]

McDougall points out that several of these are names of emotional states as well, but he sees no reason to separate emotion from instinct. In fact, he insists that the two are essentially related, the emotional aspect being the conscious condition of the impulse, or drive. Rightly he insists that emotion cannot be separated off from a total experience. Supporting the position taken in his *Social Psychology*, he says:

> Emotion was regarded as a mode of experience which accompanies the working within us of instinctive impulses. It was assumed that human nature (our inherited inborn constitution) comprises instincts; that the operation of each instinct, no matter how brought into play, is accompanied by its own peculiar quality of experience which may be called a primary emotion; and that, when two or more instincts are simultaneously at work in us, we experience a confused emotional excitement in which we can detect something of the corresponding primary emotions.[6]

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principle set forth in the quoted passage does not fit the case of the sophisticated man who, like the epicure, deliberately aims at and pursues pleasure.

[5] *Ibid.*, pp. 130 *ff.*

[6] *Ibid.*, p. 128.

INSTINCTS AS FUNCTIONS OF STRUCTURE

In the view just set forth, an instinct is regarded as a vital impulse, and the inherited neural mechanism is looked upon merely as the equipment facilitating its discharge. We may now turn to the position of those who are more inclined toward the view that the mechanism itself is the *a priori* factor. Putting the matter in a nutshell, it may be said of this second view that it assumes the impulse or drive to be an implicit phenomenon of the activity of the mechanism. Here we picture the individual as coming face to face with a situation which holds within it the elements necessary to prompt an instinctive response. The response is made automatically because the neural structure is sensitive to just those elements. When the activity is under way, or when it is all set to be under way but is blocked, we feel an impulse to do, or a drive.

It is not to be understood that all writers upon instinct make a clear distinction between impulse as vital force and impulse as implicit in the activity itself. It is just upon this point, as was stated above, that a great deal of confusion prevails. Much of the literature seems to indicate a tendency to avoid the issue, with the result that the reader is often quite uncertain, after reading, as to just what an author means by instinct. In such cases we may assume that his theory of the impulse is a compromise or combination of the opposing conceptions; but there is a vagueness about this which clear thinking is inclined to reject.

Considering instincts as inherited mechanisms which

are incidentally capable of producing an impulse to do, let us examine one of them in simplest terms. Any of the reflex acts presents the essential features. The reflex withdrawing of the hand from a hot surface, for example, is a sequence in which an external cause liberates an impulse which travels along a chain of sensory neurones. This impulse is transferred at the central system to motor neurones and is conveyed to the appropriate muscles which are thus innervated to effect the withdrawal. The entire sequence is describable as an arc the delineation of which is fixed by a natively lowered resistance of the intervening synapses. Like any instinct, the response is modifiable by experience. The end-action sought in this example is immediate, with the result that there can be no drawn-out feeling of drive or impulse to do. An analysis of the experience, however, discloses a very intense drive implicit in the action and possessing a quality of consciousness.

From this reflexive phenomenon gradually increasing degrees of complexity lead across an imaginary boundary into the instincts commonly so-called, the increasing complexity being evident both in the stimulating situation and in the responses.[7] We come then

[7] Thorndike and others carry the complexity of unlearned reactions above the so-called instincts into what are known as *capacities*. In his *Educational Psychology*, Thorndike says: "When the tendency is to an extremely indefinite response or set of responses to a very complex situation, and when the connection's final degree of strength is commonly due to very large contributions from training, it has seemed more appropriate to replace reflex and instinct by some term like capacity, or tendency, or potentiality. Thus an original tendency to respond to the circumstances of school education by achievement in learning the arts and sciences is called the capacity for scholarship."

to such forms of conduct as motherly behavior, flight, curiosity, or food-seeking. Assuming that these are instincts, we can postulate a sequence of events paralleling those described above. We have an external causative situation, as for example an infant, a dangerous beast, or a strange object; or we have an internal one—an empty and restless stomach. We have the resulting energy traveling over sensory and motor neurones and we have the appropriate motor and affective activities. We have as a necessary consequence the sense of drive which is peculiar to the activity and carries it along.

The complexity of the activating situation in these cases is shown by a contrast with the simple stimulus of the reflex act. The latter is definite and relatively invariable—a hot surface, a prick, a mote in the eye. The former is quite variable, however. In motherly behavior, for example, it is not merely the presence of an infant, but an infant plus attributes of behavior, appearance, helplessness, ownership, and surrounding contributory conditions. To these must be added the halo of sentiment surrounding the infant because of one's past experience with this and with other infants. In response to such a situation there may be manifested any number of petting, cuddling, cooing, and attentive activities. In a word, the response is not limited to a definite and simple reaction, as it is in the case of the reflex, but is widened in scope, becomes indefinite, and assumes a differentiated character.

When one speaks of an instinct he commonly has in mind one of these complex types of activity arising

from a complex situation, always realizing that to be instinct it must rest upon a core of mechanism that has been specialized through heredity. The logic of human behavior demands, in these cases, that recognition be given to the habit-forming proclivity of the species. Thus we have at least a partial explanation of the differentiated character of the responses, for it is said that the instinct proper becomes "overlaid" with habit systems.

The complexity of response in the so-called instinctive activities is evidenced not only by number and diversity, but in a temporal sense as well. That is to say, the response instead of being immediate may be more or less drawn out. The meaning of this may be illustrated by the so-called food-getting instinct. The stimulus in this case is the restless condition of the empty stomach. The direct reactions are in the nature of physical activities looking toward a satisfaction of the want. The salivary glands are stimulated. A state of consciousness (in the human, at least), including ideas as to where food may be obtained, is activated. We may consider the beggar in this case. He roams about his humble abode looking in various places where a few scraps may be obtained. He finds some and greedily devours them, but the hunger stimulus is unabated. He goes out into the street and walks from one place to another where he remembers having successfully solicited alms. His luck is not with him, so he proceeds to the woodyard at the other end of town but finds it closed. Next he trudges to another quarter where a "bread line" is maintained by a charitable

organization. Here he obtains a meal and his hunger is appeased. His outward activities cease.

No one would attempt to argue that each episode in this series of events was an instinct; but one might well reason that the whole performance was *instinctive* in the sense that it was activated by hunger. By a similar line of reasoning one might describe as instinctive a series of activities extending over a whole season, in which one prepared his ground, planted a family truck garden, cultivated and tended it, plucked the vegetables as they ripened, cooked them, and ate them. And in like manner one might explain, by reference to an instinctive factor, any drawn-out performance such as home-building, collecting and saving, preparations for an expected child, getting a college education, or any other purposeful undertaking.

It is to be observed that explanation of a drawn-out activity as instinctive puts a strain upon any definition of instinct as a mechanism. If we take the structural point of view we must look upon an instinct as a specialized response to a definite situation, in which the nerve energy traverses an inherited neural pattern. It is assumed that the drive is a condition implicit in the reaction itself. How, then, can the instinctive drive be operative throughout a long and diversified series of activities? It is here that we find ourselves in a twilight zone. Psychologists who would construct human behavior upon instinctive patterns too frequently become lost in vagueness at this point, and often seem to abandon their mechanistic hypothesis in favor of instinct as a mysterious urge.

Thorndike, perhaps a mechanist, approaches the problem very carefully. Defining an instinct, he says: "It is, in fact, a general law that, other things being equal, the response to any situation will be that which is by original nature connected with that situation, or with some situation like it." And again: "A typical reflex, instinct or capacity, as a whole, includes the ability to be sensitive to a certain situation, the ability to make a certain response, and *the existence of a bond or connection* [8] whereby that response is made to that situation." Thorndike's belief that these instincts are the prime movers in man's activities is conveyed by him in the following words: "The behavior of man in the family, in business, in the state, in religion and in every other affair of life is rooted in his unlearned equipment of instincts and capacities." [9]

In his view we may say that, given the stimulus for an original tendency, in a case where it does not lead to an immediate satisfaction, we find then a predisposition to act passed on—in some mysterious manner, it would seem—to other conduction units that are associated with the original one. These associated units may themselves be unlearned, but as Thorndike points out, they are in very great measure habits. Thus a stimulus of hunger will prompt an immediate movement for food. From the instant of the first reaction on to the consummatory act, a chain of responses is brought into play, each leading out from the neural situation

[8] The italics are the present writer's.

[9] This and two preceding quotations from Thorndike, *op. cit.*, pp. 2-5.

that precedes it.[10] Thus we may have a long-drawn-out series of acts developing from the original disposition, and involving in its course a great number of simple or complex reactions. In such a series of instinct-begotten behavior events, according to Thorndike, a "satisfyingness" inheres in the activity of those conduction units which are linked in the purposeful chain; and an "annoyingness" is felt when such activity is inhibited, or when a conduction unit not so linked is forced to act. These states of satisfyingness and annoyingness seem, as we interpret Thorndike, to be positive and negative qualities which conspire to produce the drive peculiar to instinct-begotten activities.

We have in the views just cited an explanation of drawn-out behavior of the kind often spoken of as instinctive. The successive activities of the beggar described in a preceding paragraph afford an excellent example. It is to be noted that while all the parts of the sequence were learned reactions, they were progressively evolved from an instinctive beginning. The series began with a sensitivity to the condition of hunger and spread through a number of preparatory reactions, finally reaching a consummation in the attainment of food. The question arises as to how the principles involved in a series of this sort can explain all the "behavior of man in the family, in business, in the state, in religion and in every other affair of life."

In answer to the problem, Thorndike would no doubt

[10] It would no doubt be admitted that the neural conditions involved may enter consciousness and thus permit volitional control. The conscious responses would, of course, follow the principle of associated habits.

point out that behavior as a whole is too complex to permit analysis into simple series. It could be shown that the so-called instinctive motives interlock and interweave. Let any series get started and the chances are that various instinctive dispositions would be drawn in. Begin with hunger and there may ensue reactions impelled by fear, curiosity, pride, the mastery impulse, constructive tendencies, the hoarding instinct, or what not. Contributory to all these, almost countless learned reactions are at the disposal of the individual. Thus we may conceive of the presumed instinctive factors in behavior as recurrent motives in a continuous permutation. To pick out any simple series as growing from a single instinctive disposition is rather to be looked upon as a theoretical device.

The drive or impulse of an instinct was recognized by James as a "functional correlative of structure." "The actions we call instinctive," he says, "all conform to the general reflex type; they are called forth by determinate sensory stimuli in contact with the animal's body, or at a distance in his environment." [11] He would recognize in man and animals a "preorganized bundle" of instinctive reactions which are ready-made adaptations to the environment, and holds that the "minuteness of adaptation thus shown in the way of *structure* knows no bounds." As he sees it, instincts would be too great in number to be inventoried, and any classification under general heads would be but a device of convenience.

[11] For the references to James, see his *Psychology, Briefer Course*, pp. 391 *ff*.

As to the question of drive in these instincts, James would be inclined to say that "we do what we do because we do it."

> Nothing more can be said than that these are human ways, and that every creature *likes* its own ways, and takes to the following of them as a matter of course. . . . Science may come and consider these ways, and find that most of them are useful. But it is not for the sake of their utility that they are followed, but because at the moment of following them we feel that it is the only appropriate and natural thing to do.

As James would see it, a drawn-out and coördinated series of acts would involve many separate and specific instincts, each one being a response to a specific stimulus, and each one being a separate impulse because it is the appropriate and natural thing to do.

Among the present-day writers, Woodworth's studies of the problem of drive are noteworthy.[12] This writer also looks upon the instinct as a mechanism. He would agree with McDougall in his emphasis upon the instinctive drives as "the prime movers, or ultimate springs of action, in the lives of men or animals," but he would disagree with McDougall in the thought that the drive is in the nature of a vital impulse that precedes the activity. He would hold that the mechanism, on being aroused, furnishes its own drive. And recognizing that many instincts, on being aroused, cannot reach their goal at once, he holds that they

[12] For a brief discussion of the problem by Woodworth, see his *Dynamic Psychology,* especially Chap. iii.

give rise to further, preparatory reactions, and that these preparatory reactions in some way carry over the drive from the instinctive reaction which started the series. "The motives of the adult," he says, "are derived by a continuous genetic process from the motive forces inherent in his nature." [13] It is to be observed that this point of view is quite similar to that of Thorndike, stated above.

Woodworth, however, elaborates this point of view. He becomes especially interested in that peculiar aspect of drive which is characteristic of the more intellectual activities. He readily asserts that one may be spurred on in a studious pursuit by such instincts as self-assertion, curiosity, and construction; but he fails to find here motives sufficient to explain the continued application to such a pursuit. In the case of continued application the individual seems to find in the activity something "intrinsically interesting to himself." Without this, Woodworth feels that the instinctive motive is not likely to carry the individual very far.

This state of absorption is what we call involuntary attention, and is a condition of being rapt in the interest of the activity. Where this prevails, no outside motive seems essential.

> You will never get anywhere in the particular activity by virtue of your general tendencies. This is notably true of continued and complex systems of activity, such as most human activities become. Unless you get up an interest in a system of activities you can accomplish nothing in it. . . . McDougall's principle, therefore, "that the original impulse or

[13] *Ibid.*, p. 61.

conation supplies the motive power to all the activities that are but means to the attainment of the desired end," would make a very bad guide in education or in any attempt to control and influence the behavior of men. It would lead the teacher to introduce extraneous motives at every turn and leave out of account the interest which might be generated in the subject matter. . . . What a dull world, after all, it would be if things had no interest in themselves, but only as they appealed to some one of the primary instincts or a derivative from them! . . . A man's whole working day would be occupied with uninteresting things. . . . The result of such a disproportion would be that we should only seldom be working for an end that directly attracted us; almost all of our activity would be of the nature of drudgery, requiring outside drive to keep it going.[14]

CRITICAL CONSIDERATIONS

Having considered instincts as vital forces and again as functions of structure, we may now turn to the criticisms and examine some of the reasons why instincts are being minimized by some psychologists, and even repudiated as real factors in human behavior.

As regards the conception of instincts as vital forces, the issue rests upon a problem which separates two radically different schools of thought. McDougall squarely states the case in the Preface to his *Outline of Psychology*:

The two principal alternative routes are (1) that of mechanistic science, which interprets all its processes as mechanical sequences of cause and effect, and (2) that of the

[14] *Ibid.*, pp. 71-74.

sciences of mind, for which purposive striving is a fundamental category, which regard the process of purposive striving as radically different from mechanical sequence.

This assumption of a category which is "radically different from the mechanical sequence" is repugnant to the scientific mind. It means a going back of experience into a region where forces prevail and things occur in response to mysterious laws beyond our ken. Possessing workable hypotheses which enable him to explain human behavior in physiological terms, the mechanist refuses to be drawn into the toils of what he considers miraculous agencies. When he hears of instincts as vital impulses, or "differentiations of the *élan vital*," he politely inquires just what, in scientific language, they are, where they are located, and how they exist independently of a physiological basis. He admits that he is capable of impulses akin to those described, and that he becomes conscious of them at certain poignant moments; but he insists that these are moments of physical and emotional reaction to rather definite stimuli or situations. These are moments such as those when he is face to face with some creative task, or engaged in some competitive activity, or in reaction to a sex irritant. He will admit that at times he is less conscious of the urge, as when the stimulating situation appears in the dream or imagination. But he cannot admit that the urge exists independently of these situations like a sort of unconscious consciousness hovering in the mists of his inner being, driving, impelling, coercing from some psychic covert.

It would indeed require a mystical insight to grasp these obscure directive powers that are said to watch over all our activities. They elude us. Possibly they demand some fourth-dimensional perception. There is a condition producing luminosity in a piece of iron when it is hot; but is there such a condition in a cold piece of iron? There is "urge" in an individual when the conditions are appropriate; but is it there when the conditions are absent? In other words, we know these so-called instinctive forces in the experience that calls them forth, but to think of them out of experience is like invoking spirits to explain the impulses of our conduct. We may well grant the reality of a life principle as a universal source of energy, and even, if we wish, find a physical basis for it; but we find it hard to think of it as dividing into subliminal forms each of which, thrilling with its separate purpose, commands our conscious and unconscious natures to do as it ordains.

We may now turn from the candid but vague belief in vitalism to the attempt to explain instincts in mechanistic terms. Here too we encounter a host of difficulties. These arise chiefly from the phenomenon of man's plasticity which makes possible for him an infinite and continuous modification of behavior. In the face of this it becomes utterly impossible to define any series of acts that he may perform as wholly instinctive. His behavior is always a complex interplay of habit through which is interwoven in greater or less degree the directive influence of thought. As Dewey points out:

> No activity (even one that is limited by routine habit) is confined to the channel which is most flagrantly involved in its execution. The whole organism is concerned in every act to some extent and in some fashion, internal organs as well as muscular, those of circulation, secretion, etc. Since the total state of the organism is never exactly twice alike, in so far the phenomena of hunger and sex are never twice the same in fact.[15]

Dewey calls attention to the fact that this changing generality of response is in large measure conditioned by the fact that the environment against which it is performed is never twice alike. This is because of the simple reason that other persons are a part of that environment. Our reactions affect them and they affect our reactions. "As a matter of the most rudimentary precaution, therefore, every person learns to recognize to some extent the quality of an act on the basis of its consequences in the acts of others."

We appear to be led inevitably to two conclusions: (1) that any complex activity traditionally called instinctive is so generalized, modifiable, and unpredictable in detail that any instinct there may be in it is lost in the mass of superimposed reactions, and (2) that these complex activities portray behavior as a continually changing experience—changing because we change and because the social environment is never the same. The facts here involved make it difficult if not impossible to cling to the hypothesis of instincts. Many writers are now emphasizing this point. We hear much of "circular response," which is a term aptly de-

[15] John Dewey, *Human Nature and Conduct,* pp. 150, 151.

fining behavior as something which takes place between two interweaving factors.[16] According to this principle, subject and object, stimulus and response, cease to appear as separately distinguishable factors, but appear rather as poles in an integrating relationship, each conditioning the other progressively. This means a continual evolving; in a certain sense, a continually "creative experience."

We may still be reminded that gregariousness, motherly behavior, collecting, play, wooing, and the like are universal phenomena and must therefore be based upon something fundamental, which is to say instinctive, in our structure or in our souls. Well, it must be admitted that our natures are such as to derive satisfactions from the activities so described. But when we come to analyze any such activity we find it impossible to trace through it any structural or functional unit, which we may call instinctive in contradistinction to the habit systems. Consider collecting, for example. This trait, in any child or adult, takes specialized forms. It may be postage-stamp collecting. The interest in this particular kind of object is itself in the nature of a habit system, for obviously one cannot inherit such an interest. About all we can say is that one inherits a *capacity for* that kind of interest, while all the specific qualities and activities attached to it have to be acquired. The peculiar methods that one employs in obtaining and preserving his collection of

[16] For an excellent discussion of this principle, see M. P. Follett's *Creative Experience*, especially Chap. iii. The psychological and social implications are here developed with brilliant insight.

stamps are quite unlike the methods employed in collecting birds' eggs or old china or butterflies. If we say, then, that an instinct is a function of structure, we should like to know just what situation, reaction, or mechanism is common to the collecting of postage stamps, china, birds' eggs, or butterflies. Thorndike and others suggest that the instinctive reaction is started by some element which is common to the diverse situations; but whether this is true or not, it is clear that all the differentia in such an activity as collecting are matters of learning. We seem driven to the following alternatives: If there is an instinctive basis for collecting it must be either a very generalized urge, or else it must be some one or more extremely elementary instinctive reactions which serve merely as initial stages in the habit development. If we suggest the hypothesis of a fundamental urge, we get into the difficulties already suggested; and if we accept the alternative theory, we entirely lose sight of the instinct in the mesh of learned responses.

The analysis given to collecting might profitably be applied to gregarious behavior, for a presumed gregarious instinct is the foundation for whole systems of social theory. But let it suffice to point out that the reactions called gregarious have had every opportunity to develop from environment, both in certain animals and in man. The latter may well be a social being because he is reared in society, rather than a creator of society because he is a social being. His social urge, of course, is a reality whether it springs from instinct or habit system; and so it might appear to be a distinc-

tion without a difference were it not for its significance in the problem of instincts as a whole.

When we endeavor to identify instincts with structure, our case is especially difficult with the frequently cited example of retreat from danger. The danger in such an act may be the presence of a human or animal enemy, it may be finding one's self in a burning building, it may be the possibility of toppling from a pinnacle, it may be the presence of bursting shrapnel, it may be an approaching locomotive. The essentially different situations stimulate essentially different modes of escape. What stimulus is common to the various situations, and what reaction is common to the various modes of response?

Granting an instinct of flight, we must assume that sub-man, in the days when the instinct was in the making, encountered many situations of danger. Did he learn, then, to *recognize* the element of danger in each such experience, and by repetition establish the capacity of recognition as an hereditary quality? To admit as much is equivalent to granting the very doubtful doctrine of innate ideas, something that present-day thought is very loath to do. It is an assumption, however, which McDougall and others seem disposed to entertain.[17]

Another line of criticism lies in the study of human institutions, customs, and cultural products. It is generally assumed that these are rooted in human nature, but if they are so rooted, we should expect a

[17] McDougall, *Social Psychology* (12th ed.), p. 399 and footnote.

certain amount of uniformity in these matters among different human groups. That such uniformity does not exist has been pointed out by some of the recent critics of the instinct hypothesis.[18] Fundamental differences in family life, morals, religion, and response to authority are cited as evidence that human nature varies directly with the environment in some of the essential qualities of its make-up.

F. H. Allport advances a further criticism of the traditional notion of the instincts by questioning the probability of successive maturations.[19] It has long been held that the so-called instincts appear in procession, different ones maturing at different ages. Allport holds that the development of the nervous system is general, and that in the course of this development various specific connections are made which induce mechanical reactions such as response to sound, color vision, voluntary control of the bladder, fundamental brain reactions, and finally sex reactions. All this, however, is dependent upon a diffused growth of the neurone system. But, as he points out, to explain the appearance of such behavior as flight, pursuit, collecting, gregarious responses, and the like as instincts, we have to assume a natural oncoming of reduction in resistance at the synapses among certain systems of neurones. This is a different matter from the principle of general growth, and Allport can find no evidence to support it.

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[18] Especially by Charles C. Josey in his *The Social Philosophy of Instinct,* Chap. iv.

[19] F. H. Allport, *Social Psychology* (1st ed.), pp. 44-49.

Despite the foregoing criticisms, one may still insist that man possesses a large group of elaborate instincts for the reason that the lower animals obviously do. To grant instincts in animal behavior and deny them in man's would seem to set man off as a separate creation. Nevertheless, as Watson remarks:

> No fair-minded observer of instincts in man should claim that the *genus homo* possesses anything like the picturesque instinctive repertoire of the animal. Yet even James maintains the contrary. . . . Instinct and the capacity to form habits, while related functions, are present in any animal in inverse ratio. Man excels in his habit-forming capacities.[20]

And to quote from Allport:

> When we consider the simple and unvarying uses to which the jaws of the ant, the claws of the beetle, the fin of the fish and the wing of the bird are put in comparison with the complex and thousandfold activities of the human hand, it becomes clear that the notion of innate responses is more appropriate to sub-human forms than to mankind. The more highly variable action system of man and the higher vertebrates has its neural basis in the cortex, whose pathways are determined by learning, rather than by inheritance.[21]

Under the evolutionary principle, a breakdown of specific instincts is explainable, for it need only be observed that as learning power develops there is less and less dependence upon specific instincts and consequently a growing disuse. The occurrence of something like atrophy is a reasonable assumption.

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[20] John B. Watson, *Psychology from the Standpoint of a Behaviorist* (2d ed.), p. 275.

[21] Allport, *op. cit.*, p. 48, footnote.

A RECONSTRUCTION

A growing appreciation of the difficulties surrounding the traditional doctrines of instinct has produced, as we have said, a state of great confusion in recent literature upon the subject. It is a field in which psychology is at present trying to find itself. Recognizing the diversity and generality of human behavior, Thorndike is compelled to enumerate what he considers but a partial list of over forty unlearned or instinctive responses.[22] Dewey, on the other hand, vigorously assails any attempt to classify instincts, or to consider them as types of behavior "which manifest themselves in specific acts in a one-to-one correspondence."[23] More conservative than Dewey's is the theory of writers like Balz, who holds that in the individual certain systems of response develop, and that these may be called instincts. These systems develop, not because in original nature they are already formed or inherited as complete units, but because in an atomic structure of reflex units there inheres a tendency (original ease of connection) predisposing certain of them to organize.[24] Add to these points of view the attitude of Josey, for example, whose gesture is one of repudiation of the concept of instincts,[25] and one gets a good idea of the present uncertainty in the field.

In spite of this state of affairs, there is traceable

[22] See his "Original Nature of Man," in *Educational Psychology*, vol. i.

[23] Dewey, *op. cit.*, Part 2, Sec. V.

[24] See the stimulating book by A. G. A. Balz, *The Basis of Social Theory.*

[25] As in his book, *The Social Philosophy of Instinct.*

through the maze a certain tendency which points toward a solution. This tendency is growing from two schools of thought, both of which are having a profound influence at the present time. The first of these is represented by that group of social philosophers who, like Dewey and Follett, are emphasizing the creative character of experience; and the other by men like Watson and F. H. Allport, who are emphasizing the behavioristic or experimental procedure in the study of human nature.

Perhaps enough has been said in these pages regarding the conception of experience as creative. When we consider the fluidic nature of the self, modifying, adjusting, and evolving in a continuous interweaving relationship with the environment, we are simply forced to give up the word instinct in reference to complex activities. The formalist who would try to identify an instinct in human behavior is like a boy trying to catch a bird with a broken wing. Let him approach it ever so tactfully, but just as he is about to put his hand upon it, it is gone. Personality is not an incrusted entity, but a mutable process, as it were. Changing and growing, it wings free of all such restraints as an instinct philosophy would imply. It is not driven fatefully by definitive vital forces, nor is it harnessed to preformed neural patterns.

The traditional procedure in the study of instinct has been to begin with the presumed instinctive traits *after* they have developed. The new line—that of the experimentalists—is to get at the subject genetically, beginning with the instinctive traits of infants

before experience has had a chance to modify them.[26] Various careful studies of this kind have shown that certain simple types of reaction are common to very young infants, and are apparently instinctive. Some of these elementary unlearned reactions appear to be the starting points for elaborate habit developments. F. H. Allport calls these the *prepotent reflexes.* It is his theory of behavior evolvement that we shall now follow.[27]

Allport classifies the prepotent reflexes as follows:

Starting and withdrawing
Rejecting
Struggling
Hunger reactions
Sensitive-zone reactions
Sex reactions

Within each group are certain pure instincts, or reflexes, the structures for which are matured at or shortly after birth, except for those of sex. They are all expressions of an original tendency to activity. Each represents "not a single reflex, but a large group of effector movements occurring upon the application of the appropriate stimulus." Each of these groups of reflexes involves not only motor responses but also visceral, and hence emotional, responses as well. These various activities comprise the only pure instincts, all

[26] Watson has made some classical studies along this line. See his *Psychology from the Standpoint of a Behaviorist* (2d ed.), Chap. vii.
[27] Based on his *Social Psychology,* Chap. iii.

other pattern behavior being but elaborate habit systems cumulatively built up from them.

To go into detail as to how behavior is constructed upon these original tendencies would be but a tedious application of the principles of learning to each one of them.[28] One might begin with the starting and withdrawing responses. A newborn infant will instinctively start and show signs of fear when support is suddenly withdrawn, or at a loud sound, a sudden tug, or push when drowsy. It will not normally, under a year of age, start at or seek to withdraw from sight of fire, the dark, or animals that would arouse fear in older children. In the process of learning, then, it makes a gradual selection of the most effective withdrawing acts from the great number of chance ones that may be made from time to time in any situation, and it builds up a gradual increase in the number of stimuli that may produce the act of starting or withdrawing. The increase in the number of stimuli will come about in accordance with the principle of the conditioned response by means of which events, objects, words, or conditions associated with the original stimulus take on the potency of the original stimulus itself.[29]

Consolidations resulting through evolvement from the various other prepotent reflexes might be similarly explained. It may be pointed out that the first three groups of reflexes are in the nature of protective reactions, while the last three conduce to the sustaining

[28] See the chapter on Habit, especially pp. 35-39.
[29] *Cf.* Watson's experiment described on pp. 142-43.

of the individual and the race. The sensitive-zone reactions are those which have to do with pleasurable tactile sensations. Their first evidence is a response to tickling and fondling, but in later growth we find them in sex contacts. The stimulus is readily conditioned by the person conveying it, as for example when a baby smiles at the approach of the person who has fondled it. Consolidations developing from the sensitive-zone and sex reactions result in motherly behavior, love making, and other elaborate sex manifestations.

It is to be admitted that constructive imagination must be keenly employed to see behavior as a development brought about through the processes so briefly described. One has to grasp the rich modifiability, the progressive conditioning, and the limitless substitution of responses through learning, if he would envisage the facts. In this effort one must realize the extreme plasticity which is an inherent quality of the human—a quality which manifests itself in susceptibility to impression, retentiveness, and capacity for reinstatement.

As behaviorists are wont to describe the development of behavior through learning, there is a danger of conceiving the individual as a structure that responds according to immutable formulas. A cause-and-effect analysis encourages the picture of the human as a simple machine. But such a picture is wholly inadequate for the reason that the human, relatively very unlike a machine, is never twice the same. The habit-patterns are never woven identically in any two situ-

ations. That is the point so strongly insisted upon by the philosophers of creative experience.

Another consideration that too frequently leads us astray is a neglect of the emotional factor. It is to be recognized that certain emotions are characteristic of our instinctive equipment, and it must be kept in mind that the conditioning or modifying that builds upon the original tendencies is affective as well as physical and intellectual. To say that it is affective means that it involves fears, loves, hates, anger, curiosity, or any of the states and combinations of states that come under the head of emotion or feeling. These states, as we know, have a physical basis which is itself modifiable through habit; but as *states* they are phenomena of consciousness. Being such, they always have to be reckoned with as a possible part of the total situation which expresses itself in behavior.

What we are here considering, let it be remembered, is the development of behavior systems upon the prepotent reflexes. Through early childhood the learning which guides this development must be largely a blind sort of learning. But gradually, of course, intelligence takes its rôle and intervenes. Foresight, imagination, and will join with the complex forces that so subtly interplay in the evolvement. The fact that these mental processes are themselves the expression of associative systems, or cerebral habit groupings, makes no whit of difference. As selective and directive powers, they are like vigilant watchmen in the endless making of that superstructure which we call personality.

From what has been said in this brief reconstruction of the problem of instinct, it is hoped that the reader may catch a glimpse of the probable truth in a confusing state of affairs. The difficulties in the way of cataloguing human nature according to vital forces or functions of preorganized structure can only be met, it would seem, by some such theory as the one proposed.

WHAT IT MEANS

We may finally ask what significance, if any, lies in this construction of the problem of instinct. In the first place it raises the old question of heredity versus environment. We have been inclined to explain the wide and manifold differences among people as due in large measure to differences in the potency of instincts. Now if we reduce the true instincts to a few reflexes, and explain the rest of the once-styled instincts as due to habit building through experience, are we not reducing the importance of heredity to an insignificant minimum? The answer is that we are not reducing the importance of heredity, but are defining it more accurately.

Let us for illustration consider the great musician —the pianist. The traditional notion is that he is endowed with unique instinctive impulses, chief of them being a creative urge. But according to the newer view we may assert that he began life with an instinctive equipment no different from that of the average person. He does, however, by virtue of his inheritance, possess a wonderful nervous system capa-

ble, among other things, of an exquisite neuro-muscular coördination for manipulation of the keyboard. He also is endowed with an exceptional intellect, quick perception, finely attuned ear, excellent memory, capacity for rapid reading, affective sensitivity, and, beyond a doubt, numerous other subtle inherited traits which round out his unique equipment. Possessing all these in their peculiar combination, he only needs a piano and a helpful environment to become a genius. Lacking these, but favored with other environmental conditions, he may yet develop his unusual equipment to a high degree along some other line. Lacking any favorable environment, he may eventuate as mediocre or even inferior. As regards the musical urge or any other urge, we may only say that he would never feel it if he had never enjoyed experience along the given line. The urge is initiated by the experience.

This illustration makes clear, let us hope, what is meant by heredity. We are all constructed differently. The differences in capacity for neuro-muscular coördinations are considerable; there are differences in skeletal structure and musculature; differences in circulatory, glandular, and other organic functioning; differences in sensitivity; and perhaps most important of all, differences in intellectual capacity. All such hereditary factors must condition the elaborate habit systems that grow up from the seedling reflexes.

The newer point of view must also change our conception of the rôle of environment, for we can no longer look upon environment as a modifier of inev-

itable instincts. Rather it is a medium in which is elaborated the structure of personality, the building materials being the multitudinous functions of neural structure in the individual. There is nothing necessarily preordained about the form the structure will take, although the same cannot be said about the quality of the materials.

In sociology this destroys at one sweep all theories which assume that human nature cannot be changed. In all major modes of conduct, at least, it *can* be changed when once we possess the requisite knowledge concerning the minute relationships between human equipment and environmental forces. "Having the knowledge," as Dewey says, "we may set hopefully at work upon a course of social invention and experimental engineering. A study of the educative effect, the influence upon habit, of each definite form of human intercourse, is prerequisite to effective reform." [30] These matters have a significant bearing upon the problems of war, industrial unrest, and ethical and economic adjustments generally.

In education we get away from the notion that teaching must be tied up with instincts. We are freed from a murky philosophy which holds that since instincts are implanted by nature they must be either good or bad. Our task becomes that of determining the nature of the child's equipment, and adjusting the environment so that he will realize the best that is in him. It teaches us that perversities, maladjustments, and failures are not due to inherent evils, but to habit

[30] Dewey, *op. cit.*, p. 148.

systems formed through external conditions unsuitable to the peculiarities of the individual; and that virtues of character are not reflections of the flowing spirit, but evidence of habit integrations formed in a beautiful harmony between the individual as he is constructed and life as he finds it.

We gain much if we can assure ourselves that no one is criminal, belligerent, cruel, greedy, weak-willed, or sexually perverted by nature. To lay these and similar shortcomings to instinct is to dodge the responsibility. Psychiatry, recognizing that many of these conditions are the product of experience, reeducates the individual by building new habit integrations. But this is beginning at the wrong end. The work should start before the evils have a chance to arise. Hence the great importance of education of the right kind in early childhood.

CHAPTER V

FEELING: THE LEAVEN IN PERSONALITY

We may now consider that extremely important aspect of personality, the *affective* side. This comprises the emotional phenomena proper and the various lesser degress of affection which are generally referred to technically as the *feelings*. We shall here use the word "feeling" to include any affective state, whether it consist of real emotion or of feeling in the restricted sense.

Human feeling is a field concerning which our knowledge is admittedly limited and vague. The range of individual differences in feeling is limitless, and no one is exactly the same from moment to moment. The study is far from an open book, for one's feeling nature runs deep—often so deep that his own introspections fail to define it. And yet it is in feeling that we find one of the chief factors of the personal make-up. All the lights and shades of behavior, the *nuances* of response, the unpredictable glows and chills with which one meets each successive situation are all conditions of our intricate and subtle affective organization. As Watson says in speaking of the emotions:

> They keep the individual from existing as a machine that runs the same way every day. They give him his ups and

downs, make the exact prediction of his acts more difficult (troubling the psychologist and psychiatrist thereby), and in general make him a more delightful personality with which to work, fight and play. The world would be a sorry place indeed, from an artistic and human standpoint, if the distress of the child, of the weak and the downtrodden moved no eye to tears. Fame and ambition would be sorry crowns if the multitude were not moved to acclaim. If all hearts were calm, the great artists would have lived in vain. In a sense, society hangs together because of the possibility of emotional *rapprochement.*[1]

NATURE OF EMOTIONS

A pure emotion is an instinctive phenomenon, being a response brought about through an inherited neural mechanism. The strictly hereditary emotional patterns, however, are subject to the modifying influences of the environment from the outset of life so that they develop into habit organizations and integrations that exceed the power of analysis. To get at emotions pure and simple we must go back to the infant. In the study of the emotional responses of very young infants, certain investigators have identified a number of specific reactions to definite stimuli which are no doubt inherited.[2] Watson has classified these into three groups, those of fear, rage, and love. According to his terminology, the last named is intended not in the popular sense of tender feeling for another, but

[1] John B. Watson, *Psychology from the Standpoint of a Behaviorist* (2d ed.), p. 246.

[2] Watson's experiments with infants are most important. See his account, *ibid.*, Chap. iv.

rather as pleasurable susceptibility to stimulation of sensitive zones upon the body. Watson and Freud hold that the love emotions of infancy culminate, at adolescence, in the pure sex emotion, and are but a prelude to all joyful emotions. This use of the word "love" meets with so many objections, however, that it seems needful to adopt some other term. Instead of *love* reactions, we may then speak of *pleasurable* reactions; and still thinking of those that are strictly hereditary, we may include not only the sensitive-zone reactions of the infant but also the later sex reaction. These three types of primary emotion—those of fear, rage, and pleasure—through the modifications, conditionings, and integrations resulting from experience, develop into, or at least participate in, the general affective characteristics of the individual.

In certain clear-cut situations we find one or another of the primary emotions predominating in adult experience. The conjugal relation affords certain instances of a pure and intense pleasurable emotion. Let one be slapped in the face and he will know what the pure emotion of anger is like. When a sudden loud noise startles us we experience the pristine emotion of fear. Our emotional experiences, however, are not limited to these simple occasions. For example, let us suppose that a man is asleep in bed when suddenly he is awakened by a severe earthquake. He lifts himself to a sitting posture; all his muscles become contracted; he looks excitedly about him as his attention is commanded by the dancing objects in the room and by the general clamor and confusion. His whole body

has become a tense and galvanized mechanism. He feels a sinking sensation in the abdomen. His breathing is strained, his heart palpitates, he has "gone cold," perhaps. In the midst of it all, and apparently simultaneously, he is conscious of an intense emotion of fear.

We have in this experience some of the conditions of the theory of emotions advanced by James and Lange. According to this theory, an emotion is caused by a diffuse excitation of the organic and muscular systems. It is a sort of psychic by-product of the stirred-up state. The theory has been greatly amplified in recent years by careful laboratory studies of internal changes in fear, anger, and similar emotions. It has been shown, for example, that the whole digestive process is sidetracked, the stomach movements ceasing and the digestive glands withholding their secretions. The abdominal arteries are constricted and the blood pressure increased. Most important, probably, is the effect upon the adrenal glands, for these are strongly activated and pour their secretion, adrenalin, into the rapidly circulating blood. The effect of this powerful stimulant has much to do with prompting and sustaining the internal changes just described. It also causes a dilation of the small smooth muscles of the lungs, thus greatly facilitating the assimilation of oxygen and discharge of the by-products of fatigue. By stimulating the liver, adrenalin causes it to pour into the blood a surplus of blood sugar, which is fuel for muscular work. In the case of the man frightened by the earthquake we

should have to add all these latter reactions to describe the total state productive of the emotion.

Just as these bodily changes are the basic condition of fear and anger, so are more or less similar bodily changes the basic condition of the other kinds of emotion; at least, such is the claim of the James-Lange theory. It is a point of view which is hard for the beginner to adopt, and indeed it is strongly attacked by many trained thinkers. When one is told that he feels the emotion of sorrow because of the state of his glands and muscles, or that he feels the emotion of love for a similar reason, he is likely to assert that he knows better. To this objection the reply will be made that the difficulty lies in the inadequacy of introspection. One is quite conscious of the emotion, but in the nature of things he is conscious of but few of the bodily reactions that are said to cause the emotion. The emotion seems to be spontaneous and immediate because the physical reactions may have occurred so suddenly, with the emotion practically a simultaneous accompaniment.

The James theory assumes a stimulus adequate to the setting off of the physical reactions, as a condition precedent to emotion. There would seem to be cases where the stimulus is lacking, as for example when one experiences an onrush of emotion in the midst of a train of thought, or while conversing or reading a poem; or perhaps it may sweep upon him "out of nowhere." It is probably true, however, that in these cases we have no exception to the rule. Knowing as we do how thoroughly integrated the habits of mind

and body become, it is only necessary to assume that some thought habitually associated with certain emotional reactions now brings them into play. Such an integration once established by the sight and presence of a dead person may now be activated by the thought of that person or that experience, or by any thought or perception in any way associated with the person or the experience. For the same reason we may laugh at a funny episode, and laugh many times afterward at the recollection of it. And for just the same reason we may not feel angry when a trick is played on us until after we see who has played the trick. Then if we perceive that it is some one against whom we have habitually felt anger or resentment, the old associations are made and the emotion is felt.

It is evident, then, that the intellectual setting comes to play an important part in the emotions of everyday life. Emotions often arise only after interpretation of the stimulus. Through such interpretation an intrinsically neutral stimulus may induce associations that forecast a threat or danger or promise for the future, and so bring about the emotional response of dread or hope. But in none of these cases need we abandon the theory that the condition precedent to emotion is a bodily excitation. We find that the effective stimulus may pass from one substitute to another, and occupy the intellectual realm, but always retaining its potency through integration with the bodily response.

In man's emotional development, then, we seem to have precisely the same conditions that prevail in the

case of the instincts. That is to say, there are certain simple and elementary emotions which are hereditarily predetermined as to their original stimuli and their primary reaction patterns. But from babyhood onward experience continually modifies, shifts, and multiplies both the stimuli and the reactions through the development of habit associations. And the whole growth is extended and diversified through integration with various intellectual processes.

In consideration of all that has been said, we may, nevertheless, hold to the essence of the James theory. But there are still certain obvious problems which have to do with the differentiation of the emotions. What conditions set fear off from rage, or either from pleasurable excitement? If these three are the original types, how is it that we come to possess a whole galaxy of emotions—anger, remorse, sorrow, shame, disgust, dread, exultation, pity, mirth? Why are some emotions pleasant and some unpleasant?

In endeavoring to explain the difference between fear and rage, one is struck first with their likeness. There are the same adrenal, liver, and stomach reactions, the same tension of the arteries, the same accentuated heart action, the same diffuse energizing. Yet why is it that the psychic states are quite different? As F. H. Allport points out, the answer probably lies first in the fact that the total muscular response in the one case is quite different from that in the other. In fear the muscular reactions are all set for escape; in rage, on the other hand, they are set for combat. We have then, after all, two very different bodily attitudes

taken as a whole, and we may well assume that the reactions in consciousness are colored thereby.[3]

Whether we accept this theory or not, we must marvel at the fitness of nature which so brings it about that the state of consciousness is wonderfully appropriate to the emergency. The consciousness of rage, for example, may arise from the bodily reactions, but how tremendously potent it becomes in the situation! The thought prompts a conjecture which is pertinent to the whole field of the emotions and is quite apart from the James theory. It is a thought in keeping with certain recent speculations concerning the nature of consciousness itself, to the effect that consciousness is not to be considered as a mysterious by-product, nor as a mystical member of a duality; but rather is it to be regarded and treated as an adjustment precisely as are all other adjustments of the organism. If we hold consistently to this point of view we must put the conscious reactions exactly on a par with the bodily reactions previously described, giving priority to neither. Such a monistic view makes the conscious state a part of the total reaction, just as the accentuated heartbeat is a part of it. In the light of this conception we may say that the conscious reaction does not arise like a luminous wraith out of the bodily reactions, but may come spontaneously with them. This does not preclude the assumption, however, that a conscious reaction may take place at an intermediate point in a cause-and-effect chain which began with reactions of a strictly bodily nature.

[3] F. H. Allport, *Social Psychology*, pp. 91-93.

When we turn to such questions as to why some emotions are pleasant and some unpleasant, and why rage is so different from fear, we possibly find an answer in the facts concerning the reactions of the autonomic nervous system.[4] This system, which is in large measure independent of the central nervous system, controls the visceral and gland reactions of the organism. The central part of the system, known as the *sympathetic*, controls such adrenal, liver, and stomach reactions as were spoken of in discussing fear and rage. The upper and lower parts of the autonomic system, which may be called the *cranio-sacral* division, control, on the other hand, a number of reactions such as digestion, pelvic activities, sex responses, and probably certain reactions peculiar to consanguineal love. Current psychological thought is inclined to hold that the qualitative difference between fear and rage emotions on the one hand, and joyous or pleasurable emotions on the other, is due largely to the fact that the latter emerge from cranio-sacral stimulations while the former emerge from sympathetic stimulations.[5]

There is yet more to be said with regard to the question as to why it is that we are capable of feeling so many qualities of emotion. Thus far we have spoken only of fear, rage, and emotions of pleasure;

[4] If the reader is unfamiliar with the major divisions of the nervous system, or with the subdivisions of the autonomic system, he should here consult a good textbook such as Ladd and Woodworth's *Physiological Psychology,* or an up-to-date textbook in psychology, referring to the section given to a discussion of the nervous organization.

[5] F. H. Allport, *op. cit.,* pp. 89-91.

but what of shame, anger, awe, grief, remorse, and all the rest? Many of the so-called emotions, to be sure, do not properly come under the head of true emotion because they do not involve any deep bodily reverberations. Nevertheless, there is a difference between the sullenness of anger and the abandon of rage. There are various kinds of fear and joy. McDougall, speaking of the pure emotions as *primary*, and recognizing seven instead of three of them,[6] explains *secondary* emotions as resulting from an amalgamation of primaries. Thus the fear and love with which some devout Catholic might approach the Pope would combine to produce an emotion quite distinct from either of them. In this connection he says:

> Since the primary emotions may be combined in a large number of different ways, and since the primaries that enter into the composition of a secondary emotion may be present in many different degrees of intensity, the whole range of complex emotions presents an indefinably large number of qualities that shade imperceptibly into one another without sharp dividing lines.[7]

The qualitative differences among the secondary emotions are after all probably best explained by recognizing the complex nature of our habit organizations. The sum total of our responses, including those of the brain and the skeletal muscles as well as those of the organs and glands, are never quite the same

[6] He names seven primary emotions and certain less specific ones in his *Social Psychology*, Chap. iii. In his summary in the *Outline of Psychology*, p. 324, the list is somewhat modified.

[7] McDougall, *Social Psychology* (12th ed.), p. 127.

in one situation as in another. And since this sum total is, so to speak, the matrix of the emotion, the range of possibilities is very great. Compare the rage that one might feel when in combat with his enemy with the rage he would feel if that enemy had locked him in a cell. In the one case all the skeletal muscles would be strenuously engaged in a certain manner, and there would be a rapid-fire of appropriate percepts, memories, ideas, and mental adjustments; and in the other case the reactions of the skeletal muscles would be quite different, as would also the mental reactions. In the same manner we might contrast the love for an infant with the love for a mate; or the fear of a wild animal with the fear of a critical audience.[8]

We may take it as a probable fact that the bodily changes in fear, rage, and sexual love developed biologically as instrumentalities in adjustment to meet emergencies. Such emergencies had to do with self-preservation and propagation. The consciousness of emotion, it may well be pointed out, is something more than a mere by-product; it is in fact a valuable part of the total adjustment because it integrates with the stimulating situation and thus lends tremendously to the duration and energy of the reaction. The total

[8] A. I. Gates points out that in any modification of the fear and anger emotions the organic reactions must be the same, except in intensity, because the sympathetic system acts as a whole. He explains the differences between the various kinds of emotion as chiefly due to differences in mental reactions and reactions of the skeletal muscles, but regards these latter as subsidiary "non-emotional" experiences which condition the total response. See his *Elementary Psychology,* pp. 193-95.

reactions in a state of fear, for example, have been so powerful as to enable old and decrepit refugees from war-beleaguered cities to perform prodigies of endurance.

The notion, however, that the emotions possess a similar stimulating effect upon intellectual and artistic accomplishment is very doubtful as a rule. Common observation shows that anger, fear, or excitement are detrimental to efficiency in acts of skill, in learning, and in judgment and reasoning. No one would care to be operated on by a surgeon who was under the stress of emotion. As Gates remarks:

> The excited or angered baseball player fumbles the ball. The frightened youth forgets his "piece." An inventory of the experiences of skilled musicians disclosed an almost universal conviction that any exciting emotion aroused by the audience or even an emotion normally aroused by the music itself, is detrimental to proficiency. In melancholy, ordinary tasks or debts look herculean. Frightened by a cry of "Fire" the audience falls into an irrational panic; the drowning man strangles the swimmer who attempts a rescue.[9]

Contrary to the popular opinion, even the portrayal of emotion by actors seems to be accomplished most effectively when they maintain perfect self-control. Gates quotes David Belasco in support of this:

> Nowhere are complete self-control, dominion, poise more absolutely essential to success than they are in acting, and they cannot exist where sensibility is permitted to hold sway. One night when playing *Othello* in America, Salvini, as he

[9] A. I. Gates, *Psychology for Students of Education*, p. 170.

spoke the final words, "No way but this, killing myself to die upon a kiss," and collapsed in his appalling simulation of death, murmured to Miss Viola Allen, the player of Desdemona, "For the one hundred and third and last time this season!" [10]

Our remarks upon the nature of the emotions are not complete without reference to the question of general emotionality. We know that people are not all alike in their susceptibility to emotional excitement. There are some sensitive people whose lives seem to be a continual alternation of tears, laughter, petty angers and trifling fears, and others who are as stolid and imperturbable as a hill. These differences are no doubt due, basically, to biochemical conditions in the neural structure. But these basic conditions, of course, do not predetermine the specific habits of emotion that will take form in the individual's history, nor the way these will blend and weave in the integrations of factors that enter into any given segment of behavior. The same conditions that lie at the basis of emotionality affect equally the tone of affective experience through all the minor feelings.

THE MINOR FEELINGS

There is a great range and variety of feelings which do not show the full symptomatology of emotion. For convenience these may be set off for separate study, although in reality they are always fused with the total moment-phenomenon of behavior just as the true emo-

[10] *Ibid.*, p. 173.

tions are. Feeling is an ever fluctuating and, it may almost be said, ever present condition of experience. At any time that we turn our thought upon the condition of our being we may be conscious of a state of feeling. If at any such time we are neither hungry nor full, hot nor cold, happy nor sad, excited nor quiescent, tired nor buoyant, neither one thing nor another, we may still find a word to define our state, some word like "indifferent," "middling," or "normal." We variously become restless, tired, amused, hungry, peeved, elated, hopeful, expectant, loving, relaxed, tense, attentive, absorbed, and so on continuously through our waking hours; and when we are none of these, but just "normal," it is pleasant, when we think of it, to feel so. It is the kaleidoscope of feeling that gives to life its color and charm and contrast. Without it what mollusks we should be! And yet, as compared with the rich variety of feelings in the life of some, many are just about that. How close to the zero point so many seem to drift; and on the other hand, how responsive some are to the changing currents, reacting with interests, amusements, enthusiasms even to the subtle and rare things, and likewise responding with quaverings and delightful little distresses to the things of shadow and pathos!

All these feelings that drift in so many and varying degrees below the level of tumult that we call emotion are a bafflement to psychologists. This is because they are so elusive, so hard to pin down to a definite physiological cause. Some of the feelings, however, are no doubt a confused state of sensation, at least in part. Such is certainly true of hunger, cold, feeling hot, feel-

ing tired, and various other conditions that arise from identifiable stimuli in the muscles or organs. It is generally agreed, however, that it is not sensation quality, in the strict sense, that gives what we call feeling. It is rather the peculiar kind of pleasantness or unpleasantness carried within the experience. As to whether this pleasantness or unpleasantness may, in the last analysis, be reduced to blends of true sensation, diffused and unanalyzable, is a question that cannot be definitely answered.[11]

Many experiments have been made in an effort to find the physiological causes underlying the feelings. A number of delicate tests have sought to identify organic conditions peculiar to pleasantness and unpleasantness respectively. There has been some indication that slower heartbeat and quicker breathing accompany pleasant states, while quicker heartbeat and slower breathing accompany unpleasant states. The results, however, have been neither convincing nor consistent. Furthermore, they cannot explain the many differentiations of feeling tone, so numerous and fluctuating in any hour of experience.

There is a theory that feelings may depend upon conditions in the neurones. Woodworth, for example, says:

> Pleasantness might represent smooth and easy brain action, unpleasantness slow and impeded brain action. A stimulus is pleasant, then, because the nerve currents started by it find

[11] Gates, in his *Elementary Psychology*, Chap. vi, presents a good, brief account of this problem.

smooth going through the brain centers, and another stimulus is unpleasant because it finds the going poor.[12]

As Woodworth points out, this theory does not fit all the facts, because we know that while practice makes an act more and more smooth-running, the pleasantness increases only for a time, and the act then becomes automatic and neither pleasant nor unpleasant. Woodworth's criticism would hardly seem to apply, however, to certain acts such as skating or cycling. The chief objection to the theory is the fact that unpleasant stimuli often prompt instinctive or habitual reactions that are quite prompt and smooth-running.

Woodworth himself suggests that the pleasantness or unpleasantness of a feeling may be due to the nature of the impulse peculiar to the situation in which we find ourselves. "In pleasantness, the impulse is to 'stand pat' and let the pleasant state continue; in unpleasantness the impulse is to end the state." In either case a special neural adjustment takes place; in the one instance an adjustment toward retention of the experience; in the other instance, an adjustment toward riddance. "Bitter is unpleasant because we are so organized, by native constitution, as to make the riddance adjustment on receiving this particular stimulus. In plain language, we seek to be rid of it, and that is the same as saying it is unpleasant. Sweet is pleasant for a similar reason." We may apply the theory to all of the so-called *primary* likes and dislikes. Thus we may

[12] Robert S. Woodworth, *Psychology—A Study in Mental Life*, p. 172.

say that we like certain sensations of taste, sound, odor, contact, and sight because there is a native adjustment to "stand pat" in them; and we dislike others because there is a native adjustment of riddance toward them. In the case of the simple likes and dislikes the theory may hold true, although the uninitiated person will find it hard to accept. He will insist that we make adjustment of retention or riddance because we like or dislike the sensation, and will reject the logic of the converse proposition; but he will then find it very difficult to offer an explanation for the liking or the disliking. If we say that we make the retaining adjustment *because* a thing is pleasant, it is hardly logical to say that the adjustment *is* the pleasantness.

There are many likes and dislikes, often intense ones, that are *secondary* because they are not dependent upon simple sensation, but upon acquired disposition or desire. Thus it is pleasant to do or see things done that we want done, and it is unpleasant to do or see things done that we do not want done. It may be quite pleasant for the little boy to kiss his mamma because the neural adjustments are toward the thing he desires; but it may be quite unpleasant for him to kiss an austere and critical aunt because the neural adjustments are all toward rejection. So, likewise, if the athlete on our team is trying the pole vault our neurones are all set to consummate the act with him because we so desire to see him go over. It is distinctly unpleasant not to be able to hold the adjustment to the perfect consummation, but to experience the break and failure when the crossbar is knocked off.

There is at least one type of feeling that cannot be reduced to the formula of retaining and rejecting impulses. We all know the feeling of satisfaction upon completing a task, whether it be a pleasant task or an unpleasant one. It may be the completion of a work of art, or of the job of cleaning a chicken coop. In either case, the elation or whatever it may be can hardly be explained as due to a neural adjustment of retention or rejection.

All the theories, it would seem, have their strong points and their weak ones. We are still very uncertain. It is probably true that there are several physiological causes of feelings ranging through states of digestion, gland activity, muscular tonus, and chemical condition of the synapses all the way up to activities of an intellectual character.

In this state of affairs one must hesitate to add further speculations. The writer cannot refrain, however, from expressing the belief that many if not all of our definitely pleasant and unpleasant feelings are in the nature of incipient emotion. We so often find ourselves in a position where gentle fluctuations of feeling merge now and then into genuine ebullitions of emotion, only to subside again into the flow of feeling. Thus it may be when one is watching children at play, conscious of his varying amusement and tender sympathy, when some trifling word or episode of the play suddenly and inexplicably sends a thrill of poignant emotion throughout his being. And so it often happens when we are watching a dramatic performance or listening to a lecture, or even, perhaps, when in a friendly group

or family gathering. It is quite reasonable to suppose that the various sub-emotional feelings, upon these occasions, are but tentative and uncompleted stimulations entering the autonomic system.

Let us consider this idea in connection with the impulsive nature of habits. In habit the reaction patterns are "set" to perform in a certain way. When any habit is under way and is balked, we experience a distinct feeling of discomfort. This feeling becomes rage in the case of children who are forcibly restrained from habitual finger sucking, and at times when they are restrained from less forceful habits, such as the manipulation of toys. All of us know the feeling of annoyance that arises when, in the midst of some act of a habitual nature, we are forced to desist. An excellent example of annoyance from balked habits is found in the mirror-writing experiment where all our habits of writing have to be reversed.

Now if it is true, as the writer believes, that the definitely pleasant and unpleasant feelings are closely allied with the emotional phenomena, in the sense that they are incipient autonomic reactions, we should expect each of the feelings to be tinged with pleasure, anger, or fear. In the case of balked habits, it may be ventured that the inhibited activity of the synapses produces a condition which is capable of incipient and at times full stimulation of the sympathetic division. Thus, as a natural consequence, we get the feeling tinged with anger.

Pleasure-tinged and even love-tinged feelings would come in the case of *uninhibited* habit activity. The

necessary condition here, however, is that the habit activity must be one contributive to physical or mental satisfaction. The feeling of two lovers, holding hands as they habitually do when safely unobserved, is closely akin to emotion. The feeling of the habitual smoker, when he comfortably settles down with his evening pipe, is closely akin to the tender emotion. The love of a man for his pipe is no mere figure of speech. We may venture the opinion that even those warm feelings of approval and satisfaction which we experience when some noted authority gives voice to our political prejudices are due to the unimpeded rehearsal of our mental habits. The crux must lie in our ability to establish a connection between these pleasurable habit activities and the cranio-sacral division of the autonomic system. This we cannot do experimentally. The fact remains that there is a pleasure-tinged feeling in these activities.

The following formulation is suggested:

1. We are capable of pleasure-tinged feelings when the familiar physical and mental habit activities are unimpeded.

2. We are capable of anger-tinged feelings when an agent before which we feel relatively strong and competent threatens to deprive us of familiar habit activities, or to thrust activities upon us which in some way conflict with our organization at that moment of experience.

3. We are capable of fear-tinged feelings when our major habit activities are threatened by a force or mysterious agency before which we feel actual incompetence.

THE HABIT ORGANIZATION OF FEELING

Taking feeling once more in its broad sense, to include the emotions as well as the feelings so-called, let us consider their organization according to the principles of habit formation. First of all as regards the primary emotions, it is observable that these become attached through experience to objects that do not originally evoke the emotion. This takes place according to the principle of conditioned response, as explained in the chapter on Habit.[13] It is illustrated by an experiment reported by the Watsons, in which an eleven-months-old baby was the subject.[14] The baby was a healthy one and had been under continuous observation in the hospital where its mother was a wet nurse. It was first established that the baby possessed the primary fear reaction to loud and sudden noise, but no such reaction to animals or furry objects of any kind. "We determined to take Albert and attempt to condition fear to a white rat by showing him the rat and as soon as he reached for it and touched it to strike a heavy steel bar behind him." The experiment was performed with complete regulation of every possible modifying detail, and proved to be wholly and quickly successful. A habitual emotional response of fear to the white rat was unquestionably transferred from the original stimulus through experimentally uniting the two stimuli into a single experience.

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[13] Pp. 38-39.

[14] John B. and Rosalie R. Watson, "Studies in Infant Psychology," *Scientific Monthly*, Dec., 1921; and also Watson's *Psychology from the Standpoint of a Behaviorist* (2d ed.), pp. 231-35.

The question as to whether the stimulus of the white rat would transfer to other furry objects was determined by returning the baby to the laboratory after five days. The baby showed the same fear response to the rat, but no fear response to dissimilar objects. He was then tested with a rabbit, a dog, and a seal fur, and in each case showed more or less fear reaction, presumably to the furry quality of the stimulus.

The significance of this experiment lies in its demonstration of what takes place continually through experience, but chiefly in the formative days of childhood. Starting with the primary fear, anger, and pleasure responses of infancy, a continuous and cumulative sequence of transfers must take place. What starts as an instinctive fear, anger, or pleasure response may thus be passed on through successive orders to any object or condition which originally possesses no stimulus potency. Any secondary emotional tendency established through this process is habit. Fear of the dark is habit, for there seems to be no evidence of an instinctive fear reaction to this stimulus. Fear of thunder, on the other hand, is instinctive because we are so constructed as to respond with fear to sudden loud noises.

There must be a great multiplicity of transfers in the emotional development of an individual. This characteristic development leads to what is commonly called a *complex*, and explains our unreasonable fears and hates. In Augustus Thomas' play, "The Witching Hour," it is the baneful influence of a cat's eye upon one of the characters that affords the key to

the plot. Among primitive peoples, voodoo and taboo comprise secondary stimuli of tremendous potency. Among ourselves such secondary reactions are a commonplace. We tremble at the fire alarm, feel a dread when the telephone rings or a messenger appears, are nervous in "earthquaky" weather, flare up at sight of an innocent bill collector, "hate the sight" of a hospital, and so on.

In the sphere of secondary love reactions there is an important array. The infant's original responses of pleasurable emotion to the stroking, fondling, and petting by the parents become readily attached to the parents themselves. This is well and good so long as the continuing habit-emotion development is harmless. The danger lies in the possible morbid attachments which are likely to ensue. Overfondness of child for parent has been made much of by psychoanalysts under the name of the *Œdipus complex*. They hold that the sex force draws son to mother and daughter to father, but the fact probably is that the child of either sex may develop an excessive attachment to either or both parents, or to a nurse, through the habit-forming principle of the conditioned response. The controlling and original factor is the sacral response of emotional tone which ensues from the fondling practices and necessary acts of attention bestowed by the parent. Whether the pleasurable feeling of the infant may be termed one of sex is merely a matter of terminology. We assume, however, that it gradually and almost imperceptibly merges into true sex feeling, and that this feeling is usually quite unmistakable within the first few years of

life. The sex development is one which begins in infancy and culminates in adolescence.

It goes without saying that this development is, in many respects, a most important factor in the growth of personality. The pervasive potency of the sex impulse gives an exceeding facility to the formation of conditioned responses and a peculiar permanency to them. It is not hard to realize how the growing love responses may become more and more attached to the person of one or both of the parents. Thus the son may develop a "fixation" upon the mother. Not only may her person in a physical sense acquire a monopoly of the love responses, but all that is peculiar to her will partake of the quality of this stimulus. Her voice, her face, her smile, her clothes, her acts of solicitude may all become so closely involved with the boy's love nature as to endanger the normal extension of the sex life. Pathology affords many cases traceable to these conditions. We shall return to this problem in the chapter on Problems of the Unconscious.

Continuing with the question of the habit organization of the feelings, it is interesting to note how readily the responses of feeling may become attached to ideas. It is probably true that all affective states are originally induced by objects or situations in the environment, or by physical conditions within the organism. But it so comes about that the mere thought of the object, situation, or condition may produce the appropriate feeling. This is a phenomenon with which we are all familiar. The thought of one's enemy is often as potent as his physical presence. The recollection of

a disturbing experience revives the emotional reactions. Most vivid erotic emotions may arise from reverie. It is a commonplace in pathology that deep emotional disturbances may arise from ailments that exist in the imagination alone. In all these cases the explanation must lie in the elaborate integrations of habit which spread their systems through the intellectual, affective, and motor fields of adjustment.

FEELING VERSUS BRAINS

The habit attachment of emotion to idea plays a deep part in personality. We are capable of strong anger against any one who tries to rob us. The robber may not be after our purse, but after our comfortable or satisfying habits of mind. The emotional result is just the same, unless we have developed habits of scholarly mental poise. Choleric individuals lacking this poise are forever suffering fits of rage against people, words, phrases, and symbols that are in any way associated with burglarizing attempts against their smug mental adjustments. Just as a child becomes enraged at any one who seeks to remove from his mouth the finger that he sucks, so many a man becomes equally enraged at anything that seeks to deprive him of an idea that he sucks. This explains many of the outbursts of passion, the spiteful words, the sudden losses of temper, and flurries of excitement that so often surprise one in the exchange of ideas.

These phenomena are especially peculiar to discussions of religion, politics, labor and capital, family ped-

igree, and the climate of one's home town. They are played upon in cartoons, speeches, newspaper "editorials" and jingoistic literature. Well the writers, speakers and cartoonists know that they can get a "rise" out of the common man by thrusting at him, with a word or stroke of the pen, some antagonistic idea. The word "Bolshevism" has recently been much overused for this purpose. When the crabbed old gentleman throws his paper down and kicks a chair in disgust, it is a pretty safe guess that he has been played upon by one of these tricks.

The "sentimental" person is a somewhat similar case. Such a person possesses strongly established physical, intellectual, or emotional love habits of one kind or another. These habits need not be primarily sexual or maternal, but may be grouped about one's country, one's church, one's lodge, one's friends, or what not. Possessing these habits, the sentimental person is prone to conditioned love responses toward whatever, either symbolically or otherwise, tends to support and sustain the original responses. Flags, old shoes, pictures, letters, keepsakes, names, poems, thoughts expressed in mottoes or fiction, all are potent stimuli to touch off the original emotive habits. When these habit responses are linked with the tear glands, we have the perfect sentimentalist.

In all of us major habit systems of emotion and feeling compete with intelligence for the rule of behavior. A man becomes identified with a cause, let us say, to such an extent that he has merged much of his habit life with it. It is his cause as much as his offspring is

his. Its triumph is his triumph, and its humiliation is his. Now let the most convincing argument be brought against his cause—argument that must move any unimpassioned intellect. But in this case, all to no avail. The violation of habits stirs an upwelling of emotion that overwhelms thought. The man declares that "all his feelings" belie the new ideas. They must be wrong or he would not feel so strongly against them.

Much unreasonableness is explained by these facts. When one's habits become compacted about an object or idea to the extent that his feeling is involved, he will construct his thinking to accommodate and sustain the feeling. All logical arguments and attacks will be met, not with a willingness to reconstruct where reason demands, but with a determination to maintain his position against every argument. Such a mental attitude as this is frequently called a *logic-tight compartment.* Let some one try to persuade a parent that his son is a bad boy, and he will probably learn what this means. People possessing these compartments frequently engage in the subjective pastime of self-justification. They may be conscious of a logical weakness in their position, or their mind may be deliberately closed to such consciousness, but in either case there may be a frequently recurring construction and piecing together of arguments designed for the substantiation of the personal attitude.

The modern controversy over evolution seems to be an example of this conflict between feeling and brains. On the one hand we have a group of people whose "beliefs" are the product of self-justifying thought,

which in turn is the outcome of impugned habit systems of the emotion-engendering kind. On the other hand we have a group of people whose beliefs are the fruits of inductive science. It has to be admitted, however, that even the most scientifically minded are liable to logic-tight and emotional self-justifying attitudes.

There are few of us who are not prone to these inconsistencies. In America, for example, we may wonder why the matter-of-fact English cling to the outworn and in many respects absurd institution of a king. The answer lies in this description of the ceremonial departure of the king and queen from Buckingham Palace for the opening of Parliament.[15]

In the inner courtyard of Buckingham Palace eight beautiful horses champed impatiently at their bits. The royal state coach stood under the porte-cochere. Postilions were mounted and the twelve powdered footmen, dressed in the royal livery, were at their posts.

A sudden bustle, the opening of doors, the trampling of many feet, and down the red-carpeted stairs came King George and Queen Mary.

In the outer courtyard of the Palace a detachment of the Royal Household cavalry (the Blues) were sitting at attention in their saddles, and as the first pair of horses appeared a rasping order brought flashing swords to the royal salute. Somewhere in the background the drums of the Grenadier Guards rolled and the band broke into the national anthem. In the rear the captain of the Household Cavalry led his troop and the small procession passed out into the Mall amid deafening cheers from a million uncovered heads. On either

[15] Quoted from *Time*, vol. iv, No. 25, p. 9.

side soldiers of the five Guards Regiments (Coldstream, Grenadier, Irish, Scots, Welsh), standing rigidly with presented arms, lined the streets, along the Mall to the Admiralty Arch, down Whitehall, to Westminster.

How this ancient ceremony is crammed with symbols to stir the blood of the Englishman! Every detail a separate stimulus in a grand ensemble of emotional habits. All the glory and tradition of a great race symbolized. It may be stupid and absurd and outworn. But they like it, they love it, and so they will have it!

A pacifistically inclined American was crossing the Bay of San Francisco, one early morning, on a ferryboat. Steaming across the bows came the great battleship, the *Idaho*. In superb grandeur, not two hundred yards away, with flags flying, she glided majestically toward the Golden Gate. Upon her after deck the band was gathered, and the strains of a quick-step came across the water. Upon the main deck all hands, officers and men, were taking their morning exercise. From bow to stern, in an endless line, up the starboard and down the port, they ran in time with the music. Now a column of jackies all in white, now a column of blue-clad marines, they joyously swung along. Upon the spectacle the pacifist gazed, and he knew full well all this beautiful organization was but an instrument of destruction, an immense and expensive menace to the peace of the world. But a thrill came over him, a beating of the heart, an expansive pride. It was a symbol of the land he loved, the institutions of his coun-

try, the customs and traditions in which he was reared. For the moment cold reason was overwhelmed. He did not think, he felt!

Life would be poor indeed without these experiences, but like all good things their excess is poison. For there are those in whom the conflict between feeling and brains is not limited to the great issues of life. It extends even to the little issues. Or more properly, perhaps, it may be said that there is no conflict at all, for feeling has gained the upper hand throughout. Brains have become but the servant to blind impulse, and one drifts through life molded mentally and impelled physically by the tyrant habit systems of the emotions and feelings.

CHAPTER VI

THE QUESTION OF PERSONALITY TYPES

It is a common belief that people fall into natural types—that we can, in fact, classify each and every individual in one circumscribed group or another. The popular fancy usually has it that there are opposed types of dreamer and doer, positive and negative, stern and easy-going, cheerful and brooding, practical and impractical, and so on. Ordinary language goes even further than this, and has a type for every word that may be used to describe people. Thus we hear of the athletic type, the studious type, the adventurous type, the emotional type, the pale type, or the gluttonous type.

It is true, if we use the word in a loose way, that every individual may be classified under several types for the reason that he must have several outstanding traits. If, for example, one has a dark complexion, large ears, and a jovial disposition, we might speak of him as belonging to the brunet, big-eared and jovial types. But if a man is five feet eight in stature we certainly cannot place him in the short or tall type.

The fact is, obviously, that men fall into these classifications only when qualified by extreme traits. The tendency in any large and unselected group always is for the greater number to fall about halfway between

extremes in any given trait; but considering the hundreds of human traits, it would be most extraordinary for an individual not to be at one extreme or the other in several of them. Freedom of language and human variation permit us to find types for every one.

We frequently meet, nevertheless, a deep-seated conviction that there are certain *fundamental* types, a few basic preformations of character, which are antagonistic to each other in nature and into one or another of which every individual may be placed. It will be interesting to consider some of these.

TEMPERAMENTAL TYPES

Of all attempts to define types, into one or another of which people are by predisposition cast, the most indefinite but widespread have to do with what we call temperament. As to the reality of temperament there can be no doubt, for the common experience of all testifies to the fact that people differ in just those ways that call for the use of the word. But the question is: Are there four or more fixed types of temperament, or can people be temperamentally classified only when they possess extreme characteristics?

Before attempting to answer the question, it would be helpful to look into the meaning of the word. To do so is no simple task, however. Temperament has always baffled psychologists, and they have had little to say about it despite its importance in the make-up of the human personality. We may say that it is like a mood, but more enduring. Take, for example, a mood of dejection; we are downcast, our outlook is

hopeless or pessimistic, we are disinclined to humor, our general reactions are retarded. Contrast with this the mood of elation: perhaps some sudden stroke of good fortune has thrilled us with a delight in life; joy in the present, confidence in the future, pleasure in companionship, elasticity of muscular and nervous organization are characteristic of our state of mind and demeanor. But in either case, whether in a mood of dejection or of elation, we observe in time a subsidence to normalcy. Not so with temperament, however, for it is a relatively permanent mood.

These permanent trends in personality have been the material for literature through time immemorial, but it remained for Galen, in about the year 150 A. D., to attempt their formulation into types. In considering the nature of man, he arrived at the conclusion that people could be placed in four temperamental groups: the *sanguine*, possessing a surplus of blood and temperamentally warm blooded; the *choleric*, possessing a surplus of "yellow bile" and temperamentally irritable; the *phlegmatic*, with a surplus of "phlegm" and temperamentally dull; and the *melancholic*, having a surplus of "black bile" and in temperament sentimentally sad. This classical definition of types has persisted right down to the present day, and there have been numerous attempts to describe at length the various characteristics peculiar to individuals in each group.[1] While Galen's theories as to the causes of temperament are absurd in the light of present-day physiology, they

[1] See W. Stern's summary in the Appendix to his *Differentielle Psychologie.*

are none the less distinctly modern in two respects: first, in the fact that they postulate a physiological basis; and secondly, in the fact that they so closely resemble present conceptions regarding the influence of the ductless glands.

Galen's observations of human nature are certainly in keeping with our own, for we are quite familiar with types similar to those he had in mind. Without adhering to his classification, we may picture a few well-known temperaments. There is, for example, the jovial spirit who overflows with the pleasure of life, loves a joke and laughter, never seems to get excited or deeply perturbed, takes things as they come, and apparently is never seriously worried about the future. He is probably stout and is blest with an admirable appetite and a good digestion. He undoubtedly loves children, and they are fond of him and call him "Uncle." No one would say, in the popular sense, that he is "temperamental," but he is certainly a man of temperament. We are always wondering how he acquired his extraordinary disposition.

And then there is that far different but familiar type, the choleric individual. Often, like Cassius, he wears a lean and hungry look. He takes things very seriously and generally sees them in a dark and forbidding background. He is quick to act and may be keen and intelligent, but there is no joy in his work, none of the spirit of play. He is irascible when things go wrong, and even when fortune smiles he doubts that it is genuine. He is one unblest by the gods of geniality and good cheer.

We might describe the volatile, restless, quick-acting individual, cheerful and seldom serious, uncertain and capricious; or the slow and ponderous person, comfortable and uninteresting, healthy but unanimated, perhaps neither lazy nor lacking in earnestness nor wanting in cheerfulness, but just phlegmatic.

As to the causes of these temperamental differences, there is no doubt that we must take our cue from Galen and seek them in the bodily make-up. But while he sought an explanation for each type in some single factor, our present knowledge would lead us to look to a combination of conditions in any case. On the one hand are the general functional peculiarities of the nervous tissues, such as "native differences of excitability, of rapidity of response and transmission of the nervous impulse, and differences in respect to fatigability and rapidity of recuperation." [2] These peculiarities must help to explain differences between the calm and the excitable, the slow-moving and the rapid-fire individuals. But working with these conditions are other factors which give the temperamental color to one's acts. These factors are the "influences exerted on the nervous system and, through it, on mental processes by the functioning of the bodily organs." [3]

Among the organs most actively affecting temperament are the ductless or endocrine glands, through their influence on the chemistry of the blood. Much emphasis has been given these in recent literature, and they will consequently be treated separately in a later

[2] William McDougall, *Social Psychology* (12th ed.), p. 119.
[3] *Ibid.*, p. 117.

section of this chapter. Kretschmer links the brain with the glands in considering the influence of blood chemistry upon temperament. He says:

> It [the temperament] is, as we know certainly from empirical observation, co-determinate with the chemistry of the blood, and the humors of the body. Their physical correlate is the brain-glandular apparatus. The temperament is that class of mental events which is correlated with the physique, and probably through the secretions.

And further:

> The following details may be noticed with respect to the biological foundations of our notion of the temperaments: the brain is at least the effective organ for all such activities as have an influence on the temperament even in so far as they proceed from the chemistry of the blood. That direct action on the brain can cause modifications of the temperament of a most decisive order, is shown by observation of brain trauma. It is very necessary to underline the obviousness of this, so that we shall not fall from the extremest brain-anatomy theory into a one-sided view about secretions [endocrine], which is the fashionable danger of today.[4]

To the above probable causes of temperament we should add that the tone or efficiency of the processes of metabolism, and the disposition of the by-products of those processes, are to be considered as important. A naturally sluggish disposal of the by-products, for example, would be the cause of a chronic auto-intoxication which would naturally show its effects, one way or

[4] E. Kretschmer, *Physique and Character* (trans. by Sprott), pp. 252, 253.

another, in the temperament. It may be added that if any of the tissues were diseased a deleterious effect would, generally speaking, be produced; although it is a recognized phenomenon that certain diseases have temperamental reactions that are for a time exhilarating.

There is a probability that the bodily organs cooperate in a functional manner in affecting temperament. All of them are supplied with nerves that carry impulses to the central nervous system, and so the vital state of these organs may well produce an obscure background of consciousness that will affect the tone of the mental life. Thus a perfectly working and harmonious organic system favors an unclouded and objective habit of mind, whereas imperfection or inharmony tends to consciousness of the bodily self and an introspective and brooding habit. When the combined organic state is smooth running, one's hedonic tone will be bright, he will be receptive to optimistic ideas and happy anticipations, while gloomy and pessimistic thoughts will gain no permanent influence over him. When the conditions are inharmonious, the hedonic tone will be reversed.

Considering the modes of nervous activity and hedonic tone, Warren has attempted a classification of temperaments in the table on the following page.[5]

We began, however, by asking the question whether individuals could be placed in definite temperamental types, and it must now be pointed out that any such attempt would be abortive. In the first place, we can-

[5] H. C. Warren, *Human Psychology*, p. 376.

WARREN'S CLASSIFICATION OF TEMPERAMENTS

Mode of Activity	*Hedonic Tone*	*Temperament*
Active	Pleasant	Sanguine
	Unpleasant	Choleric
	Indifferent	Mercurial
Passive	Pleasant	Jovial
	Unpleasant	Melancholic or Saturnine
	Indifferent	Phlegmatic

not all be grouped in the active or passive type of nervous make-up; but rather are all individuals, taken collectively, ranged from one extreme to the other. And so with the hedonic tone, we cannot say that there are three separate and exclusive groups, but rather that pleasant, indifferent, and unpleasant are but three degrees in a long and continuous series. These facts do not obviate types, but make it possible for us to classify only those individuals who possess extreme qualifications.

DOING, FEELING, AND THINKING TYPES

Another frequent attempt at classifying men is illustrated in the following quotation from J. Arthur Thompson:

> Our life is like a prism: its three sides are (1) Doing, (2) Feeling, and (3) Knowing, corresponding to the old fashioned hand, heart and head. Each is a doorway *out*—(1) to the world of action; (2) to the world of art, music, religious ritual, literature; and (3) to the world of externally registered thinking, from a stone circle to a nautical almanac,

from a map to a census, from a calendar to a chemical balance. Men are happily of diverse moods: (1) Some have a "practical turn of mind," with a pathological extreme in "matter-of-factness" and "materialism," but are essentially men of action, who make things hum and get things done. (2) Some are "men of feeling," going out by the emotional doorway, with a pathological extreme in "sentimentalism," but essentially men of artistic insight, and sometimes, as priests and seers, the makers and shakers of this world of ours. (3) Some are predominantly men of intellect, "who elect to know, not do," and who discover causes, uniformities, laws, and who try to think things out. The pathological extreme "botanizes on his mother's grave," as Wordsworth puts it, and gibes at "proud philosophy," but there is no doubt that the makers of new knowledge have transformed human life, giving it a new freedom and fulness.[6]

Along the same line is the division into positive and negative types. It is often claimed that people as a rule fall into one or the other of these orders. The positive individual is the leader, the director. He is the executive who makes plans and does things. His characteristics are energy, courage, decision, conviction. What he sees and what he learns are always in reference to action, for he is essentially dynamic. The negative individual, on the other hand, is the pawn that moves under the direction of the leader. His ideas remain but ideas, for he lacks initiative and daring to put them to the test. Intellectually he is no fighter, but wavers before the assertiveness of the stronger will. His place is in the rank and file.

In a famous reference to the history of philosophical

[6] *Outline of Science*, vol. iv, p. 1175.

thought, William James elaborates upon the influence of the feeling and thinking types of mind.

> The history of philosophy is, to a great extent, that of a certain clash of human temperaments. . . . Of whatever temperament a professional philosopher is, he tries, when philosophizing, to sink the fact of his temperament. . . . Yet his temperament really gives him a stronger bias than any of his more strictly objective premises. It loads the evidence for him one way or the other, making for a more sentimental or a more hard-headed view of the universe, just as this fact or that principle would. He *trusts* his temperament. Wanting a universe that suits it, he believes in any representation of the universe that does suit it. He feels men of the opposite temper to be out of key with the world's character and in his heart considers them incompetent and "not in it," in the philosophical business, even though they may far excel him in dialectical ability. . . . There arises thus a certain insincerity in our philosophical discussions; the potentest of all our premises is never mentioned.[7]

The two opposing temperaments are, according to James, the rationalistic and the empirical. A person of the former type is the "devotee to abstract and eternal principles"; while one of the latter type is the "lover of facts in all their crude variety." While all thinkers are of necessity bound both to facts and ideas, the outcome of thinking must be predetermined by the pressure of one temperament or the other. James characterizes the rationalist as "tender-minded," the empiricist as "tough-minded." The rationalist is a man

[7] William James, *Pragmatism,* Chap. i.

of feeling, the empiricist a hard-hearted creature. The former builds from the inside outward; the latter from the outside inward. James comments amusingly on the two types:

> They have a low opinion of each other. Their antagonism, whenever as individuals their temperaments have been intense, has formed in all ages a part of the philosophical atmosphere of the time. It forms a part of the philosophic atmosphere today. The tough think of the tender as sentimentalists and soft-heads. The tender feel the tough to be unrefined, callous, brutal. . . . Each type believes the other to be inferior to itself.

In tracing these attitudes through other fields, James holds that in manners and customs we find formalists on the one hand and free and easy persons on the other; in the political world, people who are temperamentally either authoritarian or anarchistic; in literature, the purists or academicals and the realists; in art the classicists and the romanticists. Each group represents the tough-minded on the one hand and the tender-minded on the other.

INTROVERT AND EXTRAVERT

Somewhat in agreement with James, C. G. Jung of Zurich, famous for his works in psychoanalysis, etc., has presented what is probably the most thorough study of "types." This is published in his book. *Psychological Types,* and is contributory to his wide investigations in the phenomena of personality.[8]

[8] See especially Chap. x of that book, in which a thorough description of the types is given. Mention should here be made of the not-

First, he recognizes two *general attitude types* in man, that of the *introvert* and that of the *extravert*.[9] These differ in their attitude toward the objects that lie within the environment—that is, to the things and beings that act upon us, and toward which we react, in the constant interplay between the "self" and the "not-self." The introvert, briefly, is one whose attitudes are governed by the inward self; the extravert one whose attitudes are governed by the objective data. The one is inward-looking; the other is outward-looking.

The introvert's attitude toward the object is an abstracting one, as if he were continually trying to "draw selfness from it," and as though the ascendancy of the object had continually to be frustrated. The extravert, on the other hand, maintains a positive relation to the object. His attitude is that of one who must be continually related to and oriented by the object.

> The two types [says Jung] are so essentially different, presenting so striking a contrast, that their existence, even to the uninitiated in psychological matters, becomes an obvious fact when once attention has been drawn to it. Who does not know those taciturn, impenetrable, shy natures, who form such a vivid contrast to those other open, sociable, serene maybe, or at least friendly and accessible, characters, who are on good terms with all the world, or, even when disagreeing with it, still hold a relation to it by which they and it are mutually affected?

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able work of E. Kretschmer, *Physique and Character* (trans. by Sprott), in which a study of types quite different from that of Jung is presented. See also Wm. McDougall, *Outline of Abnormal Psychology,* Chap. xviii.

[9] Sometimes spelt *extrovert.*

"If a man so thinks, feels and acts, in a word so lives, as to correspond directly with objective conditions and their claims, whether in a good sense or ill, he is extraverted." The objective rather than the subjective values play the greater rôle as the determining factors in his consciousness. He naturally has subjective values, but his inner eye succumbs to the external necessity. Interest and attention follow external happenings. His actions, accordingly, are governed by persons, things, and outer conditions. He therefore fits into his surrounding life with ease. He is the better adapted type. Morally his standards are those of external validity. Actually, his adaptation may be worse than that of the introvert because his surrounding conditions may be wrong or abnormal. The extravert's danger, according to Jung, is in wholly losing himself in the toils of external things. He surrenders subjective claims, possibly to the detriment of body and soul. The purely objective attitude does violence to all emotions, intentions, needs, and desires since it robs them of the energy which is their natural right, and they may become stifled and repressed. This may, in cases of extravagant extraversion, result in instability and various neurotic or abnormal expressions.

As to the general introverted type, Jung says that, in the extreme case, he "interposes a subjective view between the perception of the object and his own action which prevents the action from assuming a character that corresponds with the objective situation." Two people may observe the same object, but never in such a way as to receive identical images of it. The psychic

assimilation is radically different. Whereas the extravert refers primarily to that which reaches him from the object, the introvert principally relies upon that which the outward impression constellates in the subject. Jung defends the introvert by pointing out that the subjective factor is the only real one in cognition. "The subject is man—we are the subject." Cognition must have a subject, for without it there is no object. The one is as indispensable as the other. The danger of the extreme introvert is that the negation of the object may lead to his downfall. The ignoring of the objective factor may mean his being swamped in neglected objective demands, business details, finances, etc., or that the ignoring of the persons around him may result, for example, in a "pitiful longing to be loved."

Jung divides each of the general attitude types into subtypes. The subtype depends upon which of the "basic psychological functions" is predominant in the individual. These basic functions he names as thinking, feeling, sensation, and intuition. Thus there are the extraverted and introverted thinking types, the extraverted and introverted feeling types, and so on.

It is by no means Jung's intention to convey the idea that every one is a pronounced member of one of these general types. He points out that in many cases the attitudes are obscure, but holds that they will always emerge when we are dealing with people whose personalities are pronounced. His whole conception is based upon the assumption that every one of us is, *by nature*, one or the other, in great degree or small. In criticism,

it has to be admitted that many people are without doubt introverted, just as many are extraverted, corresponding clearly with the characteristics of their type. We are forced to take with great doubt, however, the theory that people are born into one or the other of the types. Jung fails to recognize the tremendous potencies of the environment in molding the habit trends of the character. He takes it as significant that children of the same family are often of both types, showing that he fails to grasp the subtle but fateful differences in attitudes and training which, even in the most compact family, make the formative experience of each child unique. It is much simpler and more reasonable, from what we know of psychology, to explain at least many cases of introversion and extraversion as results of environmental influences. Taking them as such, we may then look upon the introvert and the extravert as two extremes in personality development; that is to say, as opposite ends in a continuous series of results. The law of normal distribution would place the great majority of us somewhere between the two, with the plurality clustering about the middle point. And that is no doubt the truth of the matter.

ENDOCRINE TYPES

A theory now receiving a great deal of attention is that personality is in very large measure determined by the secretions from the endocrine or ductless glands, and that distinct personality types result from either the dominance or the weakness of certain of these glands. At the present time physiologists commonly

agree upon the importance of the endocrines in the general bodily economy; but relatively few go so far as to admit their priority in determining the personality.

The chief endocrine glands are classified by Watson as follows:

> (1) The thyroid apparatus, which consists of two thyroids and the four small parathyroids, two on each side. (2) The suprarenal apparatus (adrenal glands); and (3) the pituitary apparatus. (4) The thymus and pineal glands. (5) The sex glands. There are several other glands that unquestionably secrete autacoid substances, as the pancreas and the alimentary mucous membrane.[10]

The thyroid apparatus is located on either side of the larynx and windpipe; the adrenals are located one above each kidney, and each consists of two parts, a cortex and a medulla; the pituitary apparatus, exceedingly small in size, lies at the base of the brain and is divided into an anterior lobe and a posterior lobe; the thymus gland is situated in the neck near the thyroid; the pineal is a brain structure located posterior to the brain stem.

The characteristic of the ductless glands is that they secrete into the blood stream certain chemical substances known as hormones or autacoids. With the exception of the glands of sex, they possess no visible duct or connection through which their product may be passed to any part of the organism; nor do they

[10] John B. Watson, *Psychology from the Standpoint of a Behaviorist* (2d ed.), p. 199.

secrete upon any surface of the body either external or internal. In the case of the glands of sex, it has come to be known that the hormone secretion into the blood stream takes place as a function of their interstitial cells, and is entirely separate from their primary generative function.

It is not essential here to enlarge upon the part played by each of the endocrine glands in its regulation of metabolism, organic functioning, or growth. Certain known or probable facts may be mentioned, however. Removal or atrophy of the thyroid in the young causes the condition known as cretinism, which is accompanied by various evidences of impairment in growth and mentality. In adults, removal or debilitation of the thyroid likewise results in a similar serious impairment. Enlargement of the thyroid (exophthalmic goiter), or administration of thyroid substance, results in lowered blood pressure, irritability, rapid pulse, flushing, perspiration, and other evidences of disturbance. It is quite patent that the thyroid directly controls, in very important ways, both the bodily development and the tone and efficiency of bodily and mental adjustments.

The adrenal glands are vital organs, removal of which causes death. In the normal state they secrete their hormone gradually into the blood, maintaining a tonic influence upon the heart and muscles, and appear therefore to be chiefly concerned with the maintenance of energy in the organism. In fear and anger, as was explained in the chapter on Feeling, the adrenals are highly active, placing the organism, as Dorsey says,

"upon a war footing." They accentuate the heart action and hasten the circulation by constricting the blood vessels. They invigorate the muscles and stimulate the liver so that it discharges large quantities of sugar into the blood for immediate conversion into energy. At the same time that these stimulating effects are operating, an inhibiting effect is produced upon the intestines, stomach, œsophagus and gall bladder.

The pituitary gland divides its functions, apparently, between the two lobes. The *anterior* lobe is probably a vital organ. There is considerable agreement that this lobe, when overactive, produces gigantism if the excess activity begins in childhood. If this lobe becomes overactive later in life, a great enlargement of the bones of the face and extremities seems the direct result. Normally, the anterior lobe seems to exercise a regulative effect upon skeletal growth and metabolism in general. The removal of the *posterior* lobe is not necessarily fatal. When the extract of this lobe is injected into the blood the heartbeat is slowed, the blood pressure raised, and the involuntary muscles apparently stimulated. Watson says that the secretion of the posterior lobe excites the secretory activity of other glands and has a regulative effect upon the reproductive organs; and that a deficiency of its secretion apparently produces obesity and sexual infantilism.

The minute pineal gland is probably functional chiefly in childhood. The assumption is that it maintains an inhibitory influence upon the development of the reproductive organs, brain, and skeleton, although

there is no very convincing proof of this. It is possibly coöperative with the thymus in being chiefly concerned with the regulation of the life cycle from birth to puberty. Little is definitely known about the function of either of these glands.

The endocrine secretions of the sex glands are to be distinguished from those concerned directly with reproduction. Their endocrine substance exerts a considerable influence over bodily development, and its presence in the general chemique no doubt affects the individual in regard to the so-called secondary sexual characters. Removal of the sex glands in the male causes him to be beardless, and neutral in certain physical attributes. A similar operation in the female causes some structural change toward the male type. The hormone from the sex gland, in male and female, seems to be accountable for sex aggressiveness and vigor. Continuous secretion of this hormone prolongs the behavior characteristic of youth, apparently, while its deterioration would seem to hasten senescence.[11]

Upon the basis of these physiological facts and hypotheses there has been developed by some daring thinkers an elaborate theory of "gland types" of personality.[12] The highly speculative nature of the theory

[11] An illuminating symposium on the endocrine glands by medical scientists is contained in the *Journal of the American Medical Association,* vol. lxxix, pp. 89-109. The account by Watson in his *Psychology from the Standpoint of a Behaviorist* (2d ed.), pp. 197-213, and that by George A. Dorsey in *Why We Behave Like Human Beings,* Chap. iv, are reliable.

[12] The leading advocate of the gland theory of types is L. Berman, whose exceedingly interesting book, *The Glands Regulating Personality,* has been widely read, though openly discredited by many scientists.

has caused it to be met with much doubt and some derision in scientific circles, but the wisest attitude would be one of suspended judgment. Whatever be the extent of its truth, we must after all realize that it is experience and not glands that makes habits. The influences arising from gland activities can but predispose the individual, fatefully at times, no doubt, in his habit formation, or affect the vigor of his reactions. The glands do not distill essences of personality.

According to the gland theory of types, then, the personality as a whole depends upon the kind of balance that is maintained in the supply of the various hormones. The ductless glands, it is asserted, hold a sort of "interlocking directorate" over the individual, the balance of power lying with the strongest because of what it contributes, or with the weakest because of what it withholds. As Berman expresses it, any specific hormone, "either by being present in great excess above the average, or by being pretty well below the average, comes to exercise the dominating influence upon the traits of the organism." Thus we might speak of the thyroid-centered type or the thyroid deficient, of the adrenal-centered type or the adrenal deficient, and so on. We might recognize types determined by strength or weakness of the postpituitary or of the antepituitary. Each type, it is claimed, is marked by recognizable physical characteristics as well as by peculiar variations in personality. Advocates of this theory make it clear that the glands cannot be looked upon as acting separately and independently in the general bodily economy, but that they supplement

and condition one another in a total activity. Thus dominance or deficiency of a gland may be either accentuated or neutralized by the combined influence of other glands. The total effect may be the production of a unique personality.

The adrenal-centered type, when other glands are normally coöperative, is said to be marked by vigor, energy, and persistence. Among women this type is masculinoid. "An adrenal type," says Berman, "will probably be the first woman president of the United States." The type comprises the good workers, the dominant and efficient people, the successes in the competitive world, all who feel within themselves a driving force. In the type of adrenal deficient we find the negative aspects of those characteristics, except in so far as the deficiency is compensated by contributions from other glands.

There are suggested various pituitary types, due to the combinations that may result from the dual character of the pituitary body. A superiority of the anterior lobe is said to contribute such masculine qualities as masterful brain tone and action, large skeletal and good functional development; but if this superiority of the anterior were accompanied by deficiency of the posterior, the large skeletal development would be accompanied by weak intelligence. Dominance of the posterior lobe, it is said, makes for the feminine traits of emotional susceptibility, sentimentalism, and refined structural lines. It is asserted by Berman that postpituitary and ovary are conjunctive and work as allies, emphasizing the feminine traits; and that antepitu-

itary and testes are likewise conjunctive, combining for the masculine traits. When these relationships are crossed, corresponding differentiations of structure and personality are supposed to occur.

Since the substance, thyroxin, which is secreted by the thyroid gland, seems to be an accelerator of metabolism, and thus an inducement to more intense bodily activity, it is assumed that the typical "live wire" is the thyroid-centered type. If not pathologically extreme, this type, according to Berman, is characterized by quickness of impulse, rapidity in perception and volition, and is by nature restless, energetic, and ever on the go. He is a worker and a doer, up early and late to bed. Physically, according to the theory, he is distinguishable by being lean and having clear-cut features, with large and brilliant eyes and well-developed mouth and teeth.

The literature written by the advocates of the gland theory is full of interesting and ingenious elaborations of the simple and complex types. With the zest of discoverers, and doubtless too with some of the excess of enthusiasts, some of these writers have appropriated all of human nature as their hunting ground. Berman confidently exclaims:

> Already the paths blazed by the pioneers have led to the exploration of great countries. The thyroid gland, the pituitary gland, the adrenal glands, the thymus, the pineal, the sex glands, have yielded secrets and certain great postulates have been established. The life of every individual, normal or abnormal, his physical appearance and his psychic traits, are dominated largely by his internal secretions. All normal

as well as abnormal individuals are classifiable according to the internal secretions which rule in their make-up. Individuals, families, nations and races show definite internal secretion traits which stamp them with the quality of difference. The internal secretion formula of an individual may, in the future, constitute his measurement which will place him accurately in the social system.[13]

In spite of all this enthusiasm, we must take it with regard for the skepticism that prevails among the medical fraternity generally. The real proof must come from the laboratory and the dissecting room. At the present time the most serious criticism seems to arise from the interpretation of experimental data and the validity of some of the technical procedure. These are matters beyond the ken of the layman, and we can only await final judgment with faith in the thoroughgoing investigations of modern science.

[13] Berman, *op. cit.*, p. 23.

CHAPTER VII

CHARACTER

In our estimate of an individual we frequently find it convenient to make use of general and descriptive terms. If we could not speak of a person as good or bad, dull or brilliant, vivacious or quiet, generous or selfish, sociable or unsociable, we should certainly be at a loss, and any effort at description would become but a meticulous enumeration of specific traits. Instead of saying that John Smith is a good man, we should have to give an inventory of his characteristic reactions involving goodness and badness. Such a procedure would doubtless be quite in keeping with scientific fact for the reason that John Smith cannot be equally good in all his habit responses. In some he may be quite bad (assuming, of course, that goodness is determinable). When we say that he is good, what we mean is that there is an evident preponderance of goodness in his total reactions. The same principle holds whenever we apply a general descriptive adjective to an individual.

There is one quality commonly referred to in this descriptive manner which calls for special consideration. This is the quality of *character*. We very often say that a person has character or that he lacks it; and what we have in mind is a special quality of stability and firmness through the changing trials of experience.

We all know that a winning or impressive personality may, and often does, rest upon a weak and shifting foundation. It is no uncommon experience to be completely won by the lovable, brilliant, or otherwise admirable traits of an individual, only to find, when the test comes, that the strength that makes a man is not there. Around an individual we may build a glittering ideal, but something happens that demands *character*, and our structure tumbles to the ground. Though one's personality may shine and one's mentality be superb, it is after all the staunch and enduring qualities of manhood and womanhood that make one worth while. And these are the qualities which, when all is said and done, win the respect and confidence of people. No brilliant display or artful camouflage can long veil the lack of them.

SITUATIONS INVOLVING CHARACTER

We recall the case of a famous actor, an idol upon the stage and screen. He was cultured and brilliant, a painter and musician of talent. His personal friends were numbered by the hundreds, and by all of them he was loved for his *camaraderie*, his generosity, his infectious buoyancy and delightful eccentricities. But beneath it all lay the tragic weakness of character, the degenerative nonresistance, which made him helpless before the insidious allurements of liquor and narcotics. The story of how he was sucked into a gulf of debasement until mind and body were shattered is one of our modern tragedies.

In lesser ways, in our daily and domestic lives, we witness the familiar evidences of character weakness; the failures that might have been prevented but for want of courage or persistence, the quarrels and separations that might never have occurred had patience and stability prevailed, or had moral strength been found to speak the word of apology; the cares and disappointments that never would have been if "strength to be strong" were a common virtue. Much unhappiness is caused by the want of character on the part of parents in rearing their children. Intelligent and far-sighted discipline makes constant demand upon the parent that he make no surrender for the sake of a temporary peace in those many instances where petty annoyances and pleadings tempt him from the firmer course. In our relations with one another there are continual calls for minor deeds of strength. We have to do things that are morally hard, like admitting that we are wrong, or telling a difficult truth; things for which we are disinclined, like helping when we are tired or joining in a game of cards when we prefer to read; things that bore us, as many social duties do; and things that agitate our souls, as in the case of those human duties we owe the families of bereaved friends. Character, then, is not confined to large affairs, nor shown only with histrionic gesture. It is something in constant need, along all the paths of life.

There comes to mind the case of Maurice, a fifteen-year-old boy with an intellectual capacity equal to the average child of twelve. Maurice had reached the eighth grade, partly through the charity of his teach-

ers, but largely as a reward for dogged persistence and conscientious endeavor. Failure in examination never daunted him but only stimulated him to more determined work. Though he loved to play, he refused time and again to participate in basketball contests when there was a chance to remain in his room for extra help in his studies. He begged for reëxaminations and haunted his teachers at report-card time to learn what he could do to improve his marks. He was pathetic and lovable, woebegone but brave, a popular playmate, a good ball player, and a courteous little gentleman. At graduation time his classmates, realizing his jeopardy, presented to the principal a very human document in the form of a petition, urging that he be graduated, and naïvely promising, each and all, to "help him through the ninth grade in every way we can." Under such circumstances, what principal could refuse to make some compromise with the rigid custom of the schools and give the boy a chance?

Then there is the case of Richard, a physically strong and vigorous young man whose score on the army alpha examination placed him in the superior group. Richard had attended high school with little interest and mediocre success for two years, and had then quit to assume the occupation of casual farm laborer. He next essayed to learn the grocery business, but soon abandoned this to spend a few futile and expensive weeks at a trade school. Unwillingness to study or apply himself soon proved to his parents that the experiment should be abandoned, and much to the boy's pleasure he was released to a spell of shiftlessness

about the home. There now appeared a rich uncle upon the scene who believed it would be well for Richard to be detached from the home ties, so he offered a liberal allowance for a course in engineering at a private college in the city. It was a wonderful chance and eagerly grasped. For a short time Richard devoted himself to his work, getting excellent grades and high commendation from his instructors. But good work meant hard work, which was contrary to Richard's disposition and antagonistic to the various pleasures that began to make their demand upon his evenings. It came to a choice between working or not working, and Richard chose the easier course. The great experiment in his education ended in a fizzle. He is now, at the age of twenty-six, living practically upon the bounty of his none-too-prosperous parents. He occasionally gets a job, but does not hold it for any length of time, notwithstanding that he is always and sincerely full of the best intentions, has good moral habits, possesses many winning traits, and is perfectly healthy. His peculiar weakness seems to be an utter lack of "backbone." Asking for a position is so morbidly distasteful to him that he seizes every excuse for delay. His good intentions of an evening prompt him to set the alarm, that he may arise early and seek a job. But when the bell rings in the discouraging half-light of dawn, he throws over the silencer and sleeps until noon.

We have many words to define the different aspects of character. Courage is one of them. Historically, courage may be regarded as chiefly a physical trait, but in organized society it has attained manifold modifica-

tions, and has gotten far from physical manifestations and into the moral and mental realms. Volition is the essential ingredient of courage. There is no volition in the contagious mass episode of the battle charge, nor in any purely impulsive act. But it is the prevailing element in the case of the lone soldier who rescues his comrade amidst shell fire; and no less is it true of the waif who endures the jeers of his fellows to perform a kindly act. Courage is a willingness to endure pain in any form for the accomplishment of a purpose. It may be present physical pain, anticipated pain or possible death, pain that arises from disapproval of the mass or of an individual, or it may be the subtler pain that attends the abandonment of old habits. It takes courage to give up smoking and likewise to forsake comfortable mental sets. "A fine, conservative type of man" may be so because he lacks the courage to change.

In modern life we have come to honor chiefly those types of courage that make for a more spiritual nobility. The conditions of life in a cruder society might well have developed attitudes and habits that would make for physical expressions of courage; but under present conditions one might easily go through life without once facing a situation calling for the deliberate risk of life or limb. On the other hand, we are constantly encountering situations demanding painful moral choice. The countless responsibilities of civic, commercial, and industrial life involve untold trials of this kind. To maintain one's intellectual integrity in the face of scorn is as true a test of courage as the duel of a preceding day. The courageous man might well

be one who would run in terror from a physical danger. It is generally maintained, and undoubtedly with considerable truth, that the most intelligent men make the best modern soldiers; but many quite intelligent men, overrefined perhaps by the habituations of modern life, broke down in the late war under the primitive excitements of battle and became victims of "shell shock."

Fortitude is another expression of character. This is like courage in the sense that it means the strength of mind to endure unfalteringly any form of anguish, adversity, or pain. It is a more humble and less spectacular thing than courage, however, for its theater is more commonly the home or some quiet place. It is a virtue of brave patience, for it extends over a longer period of time than courage. To keep up when the load is heavy, to strive ahead despite setback and discouragement, to bear philosophically the remorse, disappointment, or thwarted desire caused by one's own folly, ignorance, or ill fortune, to do these things when surrender would bring quick relief, all require fortitude. The surrender in these cases means a breakdown of volition, a wrecking of whatever ideal has kept one unfalteringly at the ordeal. Often, no doubt, the ideal itself is absurd, or self-sacrifice is carried to an unreasonable and excessive degree; but these facts do not alter the element of *character* involved in the performance.

We may speak of determination, also, as an aspect of character. The idea here differs from fortitude in that while the latter means the will to endure, determination means the will to "get there" in the face of

obstruction or difficulty. The classical American symbol of determination is the bulldog, and the example is General Grant; and while no literal emulation of the former is advisable, one would yet be very wise to accept the General as a model in this particular virtue. The man who will get his job done, no matter how long it takes and what obstacles he has to overcome, is a man endowed with one of the prime requisites of success. It is a quality far less rare than genius, and upon the whole, far more profitable.[1]

The most common evidence of character is no doubt resistance to the continual petty temptations of life. Courage, fortitude, and determination are reserved for the major trials. Temptations, however, beset us constantly. We are not so freed from the cruder pleasures and satisfactions of experience that we can easily lead the lives of saints. We are yet weak before the temptations of sex, acquisitiveness, indulgence, and self-assertion. All sorts of fortifications against these have been built up through social experience—laws, bans, taboos, customs, ideals—until their legitimate expressions have become standardized. The standards fall far short of saintliness, but they are quite too rigid for universal observance. Most of us have to exert continual effort to keep up to the standards, an effort that is relative in some degree to what we call "conscience."

It is of course true that the various aspects of char-

[1] Kant, somewhere, in speaking of character, defines it as consisting of "such qualities as courage, resolution, and perseverance." He points out that these "may be in the highest degree pernicious and hurtful, if the will which directs them, or what is called the 'character' is not itself good."

acter may in many cases be manifested in ways that are foolish or undesirable. The man who stands upon his head at the edge of a precipice, as the result of a dare, may be exercising a great amount of courage, but the act is hardly to be condoned by any person of good sense. And in the matter of foolish fortitude, there is the case of Simeon Stylites, who has kept the world wondering whether his feat was sublime or ridiculous. Equally we might question the fortitude of one who patiently endures a curable disease when he should be using every intelligent means of ridding himself of it. Determination also lends itself to the ridiculous. When an infant sets his mind upon a trifle and keeps up an incessant pother until he gets it, we have an example of determination that is imitated in frequent cases by adults. It appears, then, that the qualities of character, to be efficient and useful, must be linked with common sense.

The qualities of character that have been named in the preceding paragraphs may seem incomplete. It may be felt that special emphasis should, for example, be placed upon such qualities as honesty, loyalty, piety, and love. The reader must be reminded that in these pages we are arbitrarily limiting character to those situations in which there is resistance to be overcome; or where there is an actual conflict—a pull in opposite directions. Where honesty, piety, loyalty, love, or any other quality emerges as a victory in a moral conflict, it is, of course, an evidence of character. The crux lies in the question as to which way the individual bends in the contest between tendencies that lead him

toward the easy, soft, transitory, but in some way wrongful, satisfactions on the one hand, and the hard, painful, enduring, rightful ones on the other. This conception of character obviously does violence to certain cherished and traditional connotations of the word. It reserves the word for those who have the will to victory in a moral fight. To be honest without having won to it through victories is to be honest, but it is not necessarily to have character. The perfect and upright man may be all of that, but his virtues are a proof of character only if he maintains them through moral travail. If, therefore, one possesses virtues that are not born of these trials, the question of his character is an open one.

CHARACTER AND WILL

The problem now is: What is this fiber or stamina that gives character to a man? Apparently it is what we commonly call *will*. "A character," J. S. Mill says, "is a completely fashioned will"; and a will in the sense in which he means it is an "aggregate of tendencies to act in a firm and prompt and definite way upon all the principal emergencies of life."

To ask, What is the will? is to propound an ancient riddle that has many answers. Opinion varies from the belief that it is a transcendent and spiritual something at the core of our being to the conviction that it is pure delusion. Metaphysically, the problem leads us into the old controversy about the freedom of the will, and psychologically into the difficulties of defining it in scientific terms. We do know that people appear to

decide to do the difficult thing when they could choose the easy one; and that some put forth effort to accomplish a purpose when it would appear to be easier for them to relinquish that effort. We know from common observation that some people are much stronger than others in these traits, and that some are quite negative in them.

Now it is true that the question whether these facts are the expression of free will is of much more importance to theology than to psychology. At least, the latter has been able to complete its system without troubling about the matter. We always have to recognize that people exercise what appears to be freedom of choice. If I may turn to right or left I will choose one way or the other. I may, if I will to do it, stand upon my head in the middle of the floor or do without the meal I crave. If a house is burning and a child is confined therein, I may will to try a rescue, or will to remain inactive. It is easy to argue that these cases demonstrate freedom of the will, and just as easy to argue that they demonstrate the opposite. The psychologist will usually be satisfied to say that a given situation has produced a given response because certain associations have been made in the nervous system. We observe that whether there be free will or not, two individuals will seldom respond to a situation in the same way. Facing the burning building, one man will heroically attempt a rescue of the endangered child while another will turn away in terror. Quite apart from the question of free will, it is obvious that the two men were very differently affected by the situation of the burn-

ing house and endangered child. They were differently affected, first of all, because of native differences in intelligence and strength of emotional reaction; but also because of differences in past experience. As they stood there they were entirely different bundles of motor, intellectual, and emotional habits. These factors must have had much if not all to do with the way each responded. The fact remains that one of them *did* undertake the daring, the difficult, the courageous thing, and whatever made him do it we may perhaps call "will."

Reference has already been made to the part played by original inherited tendencies in the development of individuality. There are those whose original nervous, glandular, and organic endowment facilitates the development of traits that may be described as strong, providing the environmental conditions have been favorable to such development; and there are those whose original structures put them under a severe handicap in any environment. It seems impossible to assume that these differences in fundamental nature are negligible or do not exist, and that character differences are wholly environmental. Maurice, the boy previously mentioned, possessed certain habits of decision and effort largely because of the material with which he began life, though training was, beyond a doubt, a great factor. But if Richard had been subjected to exactly the same training, he probably would have been weak because of some fundamental deficiency.

Now, although will power is a quality that seems to have its roots deep in our being, an unromantic psy-

chology forbids us to look upon it as some ethereal essence or interjected power. We can hardly look upon volition as a "mere stroke of mental energy or push of the soul." Except in its minor manifestations, it is a complex series of reactions beginning with the idea or aim and ending with the execution. Let us take a simple example. My front yard is badly in need of attention. The lawn needs cutting, weeds need pulling, and considerable spading is demanded. The condition is evident to me as I walk in this morning. The realization is enhanced by thoughts of its unattractiveness and the consequent appeal to pride, and by further thoughts upon the appropriateness of the season, the added difficulties that will arise from postponement, and the salutary example of some of my neighbors. Most weighty, perhaps, is the pointed suggestion from my wife. At any rate, I begin to realize very strong reasons for doing the task. But against all these arise some serious resistances. The weather is cold, I hate the feel of dirt beneath my finger nails, I am physically lazy, I have a book that I must read, and some writing that has to be done. So there begins an interesting but painful contest between the opposing forces. Idea comes in conflict with idea, habit with habit, impulse with impulse. Things done in the past, memories, conjectures regarding the future, anticipations of wifely and neighborly approval all play their parts. Finally I decide that the thing must be done. I will do it after lunch. But when the time comes I spy the unread daily journal, and the inclination arises to spend just a quarter of an hour over it before don-

ning my overalls. But no, I say; I have decided to do the thing, and that settles it. So I go out and do it.

We thus see that the will may be considerably involved with various processes, and that out of these processes a mental act that we call "decision" emerges. Whether this decision is free or necessitated is still not evident. The fabled ass that stood halfway between two equally tempting piles of hay and starved to death because he could not make a decision, would in real life probably have gone to one pile or the other; and the onlookers would have applauded and hailed it an act of will. The fact undoubtedly would have been, however, that a gentle breeze was wafting an odor of hay from the pile toward which the animal turned.

Considering that character is manifest as will, and that will is a matter of habit systems, it is possible to construct a hierarchy for character by considering the spheres or zones in which the will may operate. At the bottom would be that degree of character in which the will serves selfish ends. Here we should find those stubborn characters whose habits of will are strongly mobilized about the purposes of selfish concern. There are many such whose character strength is prodigious, but in whom we find it all directed to self-aggrandizement—toward such personal satisfactions as material reward, petty ambition, or the monopoly of a mate. But we can trace an enlargement through degrees of character by observing the expanding zones of objectives. To the degree that habit as expressed in will expands to persons and things outside the self, to that degree the character approaches ethical greatness.

Greater than the strongly selfish man is he whose habit nature would lead him into hard or difficult ways for the sake of a friend. Still greater is he who with similar impulse would serve some social group. And so we might rise through stages of service, each embracing a higher and nobler objective toward which the habit impulses are directed, until finally we should include the martyrs, social benefactors, and servants of great ideals whose choices of conduct represent the extreme sacrifices of comfort, temporal happiness, and life itself.

We cannot, however, accept the degree of service unreservedly as a formula for ethical goodness of character. In the first place, we must ask ourselves whether the habits involved have developed through conflict and resistance. One may perform great deeds of service bolstered by every comfort, and while we should not begrudge him the title of noble, we should, if we but knew the facts, hold the judgment of character in reserve. A great scientist, devoting his life to experiments that contribute to the happiness of man, may find the greatest joy and comfort in doing so; but an Elias Howe, enduring want and anguish, is another case. Gethsemane and Calvary are the crowning episodes in the story of the greatest character.

Another difficulty in evaluating character by the degree of service is due to the fact that we are generally ignorant of the true personal motives. The intellectual and emotional habits behind what seem to be exalted acts may be in truth some fear of disapproval, some desire and scheme to win praise or love, some

thought of distant and possible reward. The act apparently chosen as the more difficult and painful alternative, where it would seem that pleasure and comfort lay in another direction, may have been so fully the result of a calculating policy as to become the easiest way.

THE PSYCHOLOGY OF WILL

Will always involves decision or persistence; but this does not mean that will is exercised in every situation where choice seems to occur. For every voluntary move that we make there are alternative moves which we do not make. Usually these alternative moves do not even enter our mind. Sometimes they do, however. We may be eating dinner and find it necessary to choose between two forks; or we may be walking to work and have to decide between two or more routes. We may call any such choice an act of will and in a certain sense be justified in doing so. But choices of this kind are like simple problems in arithmetic in which we merely add two columns and compare the sums. There is absent from these cases the element of conflict or resistance which makes the choice difficult. Where conflict or resistance is thus absent, the choice seems but a cold act of judgment; but where they are present our nature for the moment appears to be on trial and something deeper than intellect seems to have a hand.

It is in these more serious cases, especially, that we are intrigued by the problem as to what it is that does the choosing or controlling. The nature of the problem may be understood if we go back for a moment to a

simple voluntary act. I am seated and reading in my study, let us say, when out of the quietness comes the sound of a door squeaking. Immediately and without hesitation I get up and find the open door and close it. There was no hesitation on my part, no temptation to remain seated, no opposition to the act. We may call this an act of will, but to do so is to give it a dignity it does not deserve, for in reality it was quite a mechanical procedure. Without going into a technical analysis, it may be said that the perception of the sound, together with a feeling or anticipation of annoyance, prompted certain nervous impulses which in turn produced certain muscular responses. These impulses took a certain course, and the motor activities manifested a certain well-trained efficiency for the reason that the whole procedure was an unresisted combination of habits. Even the perception and the feelings of annoyance (or the thoughts anticipating the feelings) were habits. Will, in any higher sense of the word, was as truly absent as in the case of a dog scratching his hide.

The case would have been different if the noise of the squeaking door had broken gradually upon a comfort which I was loath to interrupt, so that I had sat long hovering between an impulse to get up and close the door and an equally tenacious inclination to retain my comfort unbroken and let the door squeak. If in this state I had finally arisen and closed the door, the act would seem more like an evidence of will. But even here it is doubtful if anything that can rightly be called will intervenes. William James pictures the familiar state of a person lying abed of a cold, frosty morning,

torn between the impulse to get up and about his business and a paralyzing inclination to remain comfortably in bed. He says:

> Now how do we *ever* get up under such circumstances? If I may generalize from my own experience, we more often than not get up without any struggle or decision at all. We suddenly find that we *have* got up. A fortunate lapse of consciousness occurs; we forget both the warmth and the cold; we fall into some revery connected with the day's life, in the course of which the idea flashes across us, "Hullo! I must lie here no longer"—an idea which at that lucky instant awakens no contradictory or paralyzing suggestions, and consequently produces immediately its appropriate motor effects. It was our acute consciousness of both the warmth and the cold during the period of struggle, which paralyzed our activity then. . . . The moment these inhibitory ideas ceased, the original idea exerted its effects.[2]

James holds, indeed, that "the immense amount of human decisions are decisions without effort."

But let us step up to a higher type than the one just pictured. Suppose, for example, that a young man has been offered the opportunity of a trip to Europe and has also been offered a coveted position which would open the way to a desirable vocation. He has very strong inclinations toward the trip; in fact, it opens up to him the possibility of realizing the dreams of years. But on the other hand are numerous substantial and economic reasons for accepting the proffered position. As a result of this situation, a war of impulses takes

[2] William James, *Principles of Psychology*, vol. ii, pp. 524, 525.

place within him; nor is it wholly a conflict of thought, for feelings become deeply involved on both sides. So complicated do such situations become, at times, that one grows hopeless of reaching any decision at all, and is inclined to leave the matter to chance and toss a coin. Even then he finds himself in as great a quandary as ever. Yet a decision is in practically every case somehow arrived at. There is no objection to calling this decision an act of *will*.

If the young man in question had been offered only one of the opportunities, say the trip abroad, and there had been no question of employment, his decision would have been quickly made. Any minor objections would have been swept aside by the bigness of the major proposition. But what is there in this major proposition, we may ask, which gives it so much potency? To answer this is to get back to the old matter of habit systems. We may say that the proposal of a trip to Europe has energized a number of reactions which are not new to the experience of the young man in question. Numerous interesting and fascinating ideas about Europe and travel come into his consciousness, due to the fact of the previous associations in the neural network of the brain. These associations are in the nature of intellectual habits. As they recur and interplay they are accompanied by feelings which are habitually associated with the ideas in question. If habitual motor acts are associated with the thoughts and feelings, these also are energized into incipient or overt performance. We thus have a complexus of thought-feeling-motor activity which is the very substance of interest and

attention. We have, in a word, an *interest system*, and when we have it we are possessed by something dynamic and impellent.

Such an imperative condition of affairs, when not conflicted with or resisted by other systems, gives us volition in its very simplest sense. As tersely stated by H. H. Goddard: "Volitional action or will is a matter of neurone patterns, which in turn is a matter of inheritance plus experience." [3] Goddard quotes William James's statement, in which the latter says that the elements of will are *ideas*, *habit of attention*, and *habits of action*. We need go into no details concerning James's statement except to consider that one phrase, "habit of attention." In the quotation, James probably means by *habit* of attention simply that the attention has a way of flowing along well-worn channels. That which is familiar is attended to because it *is* familiar. Then we have that kind of attention which is called *involuntary*. It is the kind of attention which calls for no effort. But Goddard might also have quoted James where he says: "Effort of attention is thus the essential phenomenon of will." [4] This attention which is maintained only with effort is obviously not the easy flowing along well-worn channels that we find in involuntary attention. James himself recognizes that this effortful attention may belong to an "altogether different realm," as if it were directed from a plane other than physical, and were, in fact, *free*. James recognizes the possibility, but is disinclined to

[3] H. H. Goddard, *Psychology of the Normal and Subnormal*, p. 20.
[4] William James, *Psychology, Briefer Course*, p. 450.

believe it and hands the problem over to the metaphysicians.[5]

We may now go back to our young man who had to choose between a trip to Europe and accepting a desirable position. We may readily see that if the alternative proposal had not been made, and if the young man had a strong interest in travel, the decision to accept the trip would be made without effort. This would not be will in any noble sense. It would be merely a natural sequence of psychological and motor events. But when the alternative proposal is made, then the conflict arises. Then a decision requiring effort has to be made, and will comes into play. But there is will in a somewhat different but equally legitimate sense, and it is this latter kind which James seems to have in mind when he speaks of effort. He has in mind, rather, the sustaining of the attention upon a painful or distasteful act, goal, or ideal until the called-for behavior ensues. If our imaginary young man had to take his trip upon a painful mission, if he hated travel, were subject to seasickness, and knew that he would be arrested abroad as an army deserter, then indeed would effort be demanded for every detail and every act of decision, preparation, and departure. This is the kind of will shown when there is resistance to be overcome. It is the will of the student who drives himself to his tasks, and of the tired woman who drags herself to her duties. What we wish to argue here is, that these cases in which there is

[5] One of the best recent summaries of the problem is probably that of J. C. M. Garnett, in his book, *Education and World Citizenship,* especially Chaps. vii-ix.

effort do not demand the interposition of a free psychic agent.

There is an ingenious theory of drainage, not new in psychology, which would explain why it is that any decision leading to action is reached at all. According to this theory, the neural organization "which is itself connected to (or which forms part of) the widest and deepest interest systems tends, other things being equal, to attract and drain the impulse." [6] In other words, at any time that interest system which possesses for us the most impellent thought-feeling activities saps the energy from other systems. The chemistry or psychosis of this process must probably remain hypothetical. However, the point is that any strong interest system is capable of absorbing all surplus dynamic, thus both engrossing the attention and acting as a powerful stimulus for any and all motor acts that may serve its purpose. In the case where there are two equally powerful interest systems, the theory is stated by the more mystical thinkers that will, as an independent psychic factor, casts its influence with one or the other of the systems, and thus increases its excitement; and that the interest system thus favored becomes the dominant one, and the energy from competing ones is drained into it. The favored system with this reinforcement, it is said, commands the attention and controls the situation.[7] The essential but doubtful postulate in this theory, we repeat, is that will acts as a free psychic agent, emerging from out the soul, so to speak, and casting the deciding die.

[6] *Ibid.*, p. 89.

[7] *Ibid.*, pp. 127-131.

This problem of the will is a rich field for theorizing. The evidences leading to the assumption that what we call will is a product of experience, rather than an independent agent, are abundant. To say that will is a product of experience means that it is an expression of habit systems built into the inherited ground. This claim is supportable if we reiterate what has been said, namely, that habits are of thought, feeling, and action; and that these are multitudinous and subtle, that they interweave and transpose, and that they may form fleeting constellations or fairly permanent groupings.

Enough has been said, perhaps, to make it plain that an interest system, if strong enough, is capable of commanding the attention and directing a purposeful activity. We have stated that the best evidence of what we call will is shown where there is conflict, or resistance to be overcome; that is to say, where there is competition between interest systems, for it is here that effort gets into the game. Now if we try to explain will as a product of experience, are we in a position to answer the question: What is it that does the choosing or the persisting?

To answer this question, let us review the case of the individual who comes into this world of experience. Let us assume that, to begin with, he possesses no virtue in the nature of a free will. What he possesses is an exquisitely complex mechanism. The world he comes into is one of things, events, and influences which are at first meaningless to him. His experience rapidly teaches him that certain kinds of reactions give pain or dissatisfaction while others give pleasure or satisfac-

tion. This is a process of learning in which the entire nervous system, including the brain, becomes modified in ways that will reinstate desirable reactions and inhibit undesirable ones. It would be a fairly simple development if the environment and the organism were stable; but it so happens that both are changing and in a flux, due to the growth and sensitivity of the individual, the instability of the natural order, and the fact that we live with other humans as delicately attuned as we. In this differentiating state we build an elaborate network of co-implicated reactions. We learn countless values for the various possible types of behavior—fleeting or lasting values—and how they will affect us both directly and in the long run. We learn to appraise these values with respect to each subtly differing situation. Thus the pleasures and pains, the satisfactions and dissatisfactions, the desires, aversions, and feelings grow into systems along with the intellectual and motor modifications.

Through such a development one must perforce generalize from experience, forming for himself certain major habits of thought and conduct. Working by inference, one learns to recognize the significance of each situation of life in the light of the larger meanings that experience has taught him, but which he has probably never formally defined. The experience which brings this about is not to be looked upon as a lone encounter with merely physical situations, for the influence of others is always present in their approval or reproof, their examples, their teaching, their preaching, and their exhorting.

In this experiential process, ideals and policies of conduct have developed. It is evident that these major habits of attitude are hardly to be recognized in the countless acts of daily life which involve mere choice between harmless alternatives. It is when conflict or resistance, great or small, arises, that the ideals and policies come into the arena. They then speak with the word of authority. It may be that their word is disregarded because the temptation to do otherwise than as they command is too strong. It may be that the word of authority itself commands to do what the world calls wrong or bad, for the reason that such has been the policy evolved through the peculiar experience of the individual. At any rate, behind it all is that integration of life's teachings, drawn from the cumulative experience of the individual, which is woven so intricately into the mesh of the original structure.

Still speaking in terms of interest systems, we may now point out that where there is a conflict or resistance between two such systems there comes into play a further system, a third system, as it were. What we really have now is a mass of tendencies on the one side, a mass of about equal strength on the other, and in between them, so to speak, a third mass which represents our moral nature (or at any rate our major ideals and policies). This third system embraces those larger and authoritative outcomes of experience which, so we have learned, dictate the better or, in the long run, more desirable ways. In the case of the young man of our previous illustration, the conflict would have been, in a sense, much more simple, had it not been for this third

system. He would, so to speak, have been blown one way or the other with the breeze. The trip to Europe held its charms; the desirable position held its allurements. He would have hesitated, vacillated, tossed a coin, perhaps; but he would have been like a child who tries to choose between ice cream and pie. The significant conflict arose because those weighty considerations of policy and ideals came between. Now we may assume that the third system became sufficiently excited to drain the energy from the unacceptable elements in the competing systems, while facilitating permissible elements; for the young man's *habits of action* were trained and responsive to the dictates of the middle system.

In this theory we have our explanation of effort as well as our answer to the question as to what it is that does the choosing or persisting. If we are idling, our whole system is set to idling; we are enjoying the mental drift and the relaxation. But we know that we must get to work, and with effort, with will, we do so. Or we have laid our plans with great anticipation for some pleasure; but duty calls us to an unexpected and drudging task, and we forego the pleasure. Or we are fighting some moral battle, and we know that to give in will bring rest and peace of a kind; but we fight on. Why? Because in each case the ingrained system of moral beliefs and policies of conduct, sustained by fears and hopes, and with strongly entrenched habits of action, prevails. It prevails because experience has so deeply engraved it in our habit organization that it outweighs the feelings and impulses to action that

brew in the contending systems. It prevails, that is, if we are so organized that it *will* prevail.

This inadequate attempt to explain will is made necessary because of the popular notion that it is some kind of subliminal entity which each possesses in a given degree. It is not to be denied that, seeping through each neurone and pervading each reaction, there may be a spiritual something which, in the case of the world's great ethical archetypes and moral giants, inspires to noble ends. If so, it is strong in the character depths of a Lincoln or a Father Damien or a Captain Scott. We too, if we could but know the truth, may possess our modicum of it. But in all human cases it must act through the common laws of finite mind.

CHAPTER VIII

BRAINS

Intelligence is personality in its regal aspect. It is the crowning achievement of evolution in a biological sense and in a social sense—biological in the creation of the human brain; social in the progressive accumulation and compounding of knowledge, and in the imparting of it. The funding of knowledge through the instrumentality of the biological brain, made possible by the invention of spoken and written language, has raised man to his present intellectual kingdom.

Probably more is said and written about intelligence in current psychology than about any other aspect of the personal composite. Concerning it, many popular misconceptions prevail, and even among the best authorities there are several conflicting points of view. It is a difficult task to select from the mass of theory and evidence just those materials which will set forth the essential aspects of the subject. To do this in a manner that will satisfy all who have studied in the field is impossible. We shall not make the attempt in this or the following chapter.

THE SOCIAL SIGNIFICANCE OF INTELLIGENCE

Let us postpone for the present the question as to what intelligence is, for after all it is something that

we can talk about without a technical definition, just as we can talk about the weather without a scientific knowledge of it. We see intelligence manifested in countless ways, and we give it honor when we see it. We see the lack of it, too, or think that we do (for often we put down as unintelligent that which we have a prejudice against or do not understand). Nevertheless, we have great and widespread evidence, in the present day, of triumphs in the applications of intelligence to material problems. So impressed do some of us become, not seeing our failures in moral realms, that we vaunt ourselves and declare that this is the "age of intelligence." Such proud appellations will indeed be merited when we lift our moral achievements to the level of our material ones; but pending that time we may still with much justice marvel at the works accomplished by the mind of man. Is there a limit, either moral or physical?

Not vaunting, but with a different kind of pride, some of us in the present day are inclined to a notion that we have made a sort of discovery of intelligence. This seems due, chiefly, to the present extensive use of tests in measuring a certain native aspect of intelligence, and to the emphasis that is now being given, especially in educational practice, to mental differences among individuals. Of course it is absurd to speak of intelligence as a discovery—more so than to speak of digestion as such. Differences in intelligence have always been observed, and society has always been organized with some regard for such differences. Plato's *Republic* is built upon these conceptions, and

in it Plato even anticipates the use of intelligence tests, for he says:

> We watch them [the citizens] from their youth upwards, and make them perform actions in which they are most likely to forget, or to be deceived, and he who remembers and is not deceived is to be selected, and he who fails in the trial is to be rejected.

The selection that Plato proposes is nothing unique, after all. Our forefathers founded democracy upon the idea, though at times our success in selection has been a wee bit doubtful. In social, business, and industrial life, where the uncertain methods of politics are not supposed to prevail, the same process goes forward. Among people who associate together there is inevitably established a gradation which depends largely upon intelligence. The keenness of one's perceptions, the accuracy of his inferences, his power of analysis and prognosis, the scope and validity of his memory, the brilliance and fertility of his imagination are all factors which help to determine his status in any familiar group. In academic classes, in school and college faculties, in clubs and other organizations, in boards of directors, in trades unions, in legislative bodies, and in civic communities, or wherever evidence of intelligence may be shown, people must fall into rankings of esteem and prestige, though not necessarily of popularity, depending upon the extent to which they give evidence of this essential quality.

This does not mean that intelligence is always clearly distinguishable, for many a fine intellect is hidden

behind a cloak of obscuring traits. It does not mean that the brilliant are always chosen by their fellows, for their very brilliance may be a source of envy, or of fear that it may lead to discomfiting innovation. The brilliant are sometimes unpopular, too, because of unfortunate social traits that disqualify them in one way or another; they may be exasperating or contentious or what not. But in spite of these facts, it remains true that the degree of intelligence holds a position of great importance in the ensemble which is the personality.

So far as God-given brains are concerned, scientists make no claim that we are superior to certain peoples of ancient time, as, for example, the Cro-Magnon race, with their noble skull development, who dwelt in the valleys of southern France twenty thousand years ago. Our present superiority lies, rather, in the fruits of experience which have accumulated; in the more thorough and extensive training which education imparts; in the increasingly creative uses to which we have turned the art of printing; and, generally speaking, in the fact that our life is so thoroughly saturated with stimuli which demand the trained use of brains. These influences do not affect the biological inheritance, but are of the very essence of social inheritance in its advancement to higher levels of intelligence through succeeding generations.

These social influences affect individuals rather than the mass. The works of active and productive minds make it quite easy for dependent drones and parasites to drift through life practically untouched by all that society offers for the improvement of intelligence.

There are kept idlers and drifters in plenty, bedecked in luxury and transported in limousines, not one whit superior in intelligence to certain of our bone-gnawing forbears. Their intelligence is merely different.

In a previous chapter some evidence was given to show that there is an inclination, in any given individual, for desirable traits to correlate, or, in other words, to tend toward a common level when appraised.[1] Several such desirable traits were named, such as leadership, initiative, self-confidence, and similar characteristics having a social significance. Among them intelligence was listed. If it were possible to measure all these traits with exactness, it is theoretically conceivable that we might find a perfect correlation between each and every desirable trait on the one hand and intelligence on the other. Such a discovery would indeed be a shock to our conception of personality as the sum total of habit tendencies, for it would practically demonstrate that intelligence determines the degree attained by each of the other traits. The fact remains, however, that there is a certain amount of such correlation.

To explain this correlation it would be well for the present to limit our conception of intelligence. We shall consider only that function of it which is the office of the brain, and shall refer to it as intellect. It will later be shown that intelligence, in the situations of real life, cannot be so limited, though there will never be any question of the royal prerogative of intellect. Let us advance the assumption, then, that whatever

[1] See pp. 74-79.

correlation exists between intelligence and other traits is due to the selective function of the intellect. This assumption is reasonable for we must look upon the components of personality as developments through the educative effects of experience. In this experience, the net profits must in large part depend upon the keenness of mentality which interprets the experience. This point may be simply illustrated by one of the problems in the Stanford Revision of the Binet-Simon intelligence examination. A paper is folded across the middle and a small hole cut in the center of the folded edge. The subject is now asked how many holes will appear when the paper is unfolded. Whether his answer is right or wrong, he is next shown the unfolded paper. Then another similar paper is folded twice at right angles, and a hole cut in the center of the single folded edge. The same question is asked and the result shown. Then again a paper is folded—thrice this time—and the same procedure followed. Each succeeding time an additional fold is given to the paper, and at some step the subject is expected to grasp the principle that the number of holes doubles at each succeeding fold. This is a test of inference, an effort to measure the readiness with which one forms a generalization from a succession of similar instances. And it is an excellent example of what happens in real life, not with bits of paper, but with experiences of social import. Out of successive experiences in a given kind of situation, one reaches a generalization that becomes a guide to conduct. Such a generalization may concern the control of an emotion, the manner of meeting a stranger, a habit of coöpera-

tion, an attitude in meeting a certain kind of difficulty, a method of work, or any one of countless adjustments in the social world. The ability to grasp these generalizations is a function of the intellect. The ability to apply them, however, is at any moment conditioned by the whole set of bodily, affective, and intellectual habit systems brought into play.

Just as the possession of good intellect must be considered a factor in the development of desirable traits, so must the lack of it be looked upon as to some extent involved in the development of undesirable traits. A large amount of data bearing upon this problem have been collected by students of juvenile and adult delinquency. Some of these students have been led to the conclusion that of all the psychological causes of crime, the commonest and gravest is a defective mind. Some American investigators back this conclusion by figures that are startlingly high.

According to one of the most quoted of such workers, Dr. Goddard of Vineland, 66 per cent of the inmates of the Newark Detention Home, New Jersey, are "distinctly feeble-minded." According to another, a psychologist of New York, "probably 80 per cent of the children in the Juvenile Courts in Manhattan and Bronx are mentally defective." [2]

These figures are questioned by Cyril Burt, of England, whose researches are probably the most extensive in the field. He claims that the American criterion is too high, and uses an English statutory definition of mental defect which includes children "who

[2] Quoted from Cyril Burt, *The Young Delinquent*, p. 285.

are backward in intelligence by at least three-tenths of their ages." Upon this criterion (an I. Q. of .70 or less), he finds that 8 per cent of the juvenile delinquents whom he has tested are mentally defective. With Burt's low figure certain American investigators tend to agree. J. B. Miner, for example, gives a proportion of 7.3 per cent.[3]

Even Burt's figure, as he points out,

> reveals among the delinquent population a proportion of mental defectives five times as great as among the school population at large. Mental defect, beyond all controversy, therefore, is a notable factor in the production of crime. . . . Further, wherever it does coöperate, it plays the part almost without exception, not of a mere accessory condition, but of a principal, if somewhat negative, cause. Its mode of working is plain. The defective child is without the necessary insight to perceive for himself or to hold effectively in mind that what tempts him is dishonest, and that dishonesty is wrong—base in itself and bad policy in the long run.[4]

If it is important to note that a good intellect helps in the development of desirable traits, and that a poor intellect helps in the development of undesirable ones, it is equally important to note that the actual relationship in either case is low and partial. The very fact that there is a positive relationship may encourage any of the following erroneous inferences: (1) that the possession of desirable traits signifies a good intellect; (2) that the possession of a good intellect signifies other worthy traits; (3) that the possession of a low

[3] *Ibid.*, p. 285, footnote. [4] *Ibid.*, p. 288.

intellect signifies other undesirable traits; (4) that the manifestation of undesirable traits signifies a poor intellect. It has been urged again and again in this book that personality is an interrelated composite of habit tendencies. As such, it can only be understood through realizing the dependence of every component upon every other one. What we have been referring to as intellect is itself a multiple function which is in turn a subfunction of a broader function which we may rightly call intelligence. Intelligence in this broad sense would include the whole complex state of the organism as activated in an organized manner to surmount a difficulty or solve a problem. Intelligence in this sense is itself a subfunction of the total personality. Now if all this is read backwards, we arrive where we began, namely at intellect—that is, brains; and if we now say that intellect holds a certain rôle of authority over the other traits, the statement will be interpreted relatively, as it should be. We must also remember, as was pointed out in the chapter on Distribution of Traits, that traits are little more than working principles or centers of reference in the total behavior. As such, we cannot look upon them as delineated, or necessarily consistent and stable. We can only regard them as tending to be so in normal cases.

HOW BRAINS WORK

We have introduced the conception of intellect, or brains, as the central and chief aspect of intelligent behavior. This separation of the purely intellectual

from the wider function is really an abstraction to facilitate discussion, rather than a reality of the true situation. Let us continue, however, to focus our attention upon the intellectual aspect, leaving for the following chapter our discussion of intelligence in its larger meaning. We turn now to a psychological consideration of intellect, and in the undertaking find it easier to tell what intellect is not than what it is. It is not a psychic force or a spiritual power, if we mean by these some supernal energy of the soul. It is too clearly developmental, too evidently dependent upon structure and training, too obviously relative to external conditions and factors of our inner experience, to be explained by any offhand mystical formula. For the same reasons, intellect is not to be regarded naïvely as a secretion of the brain. Nor can we assume with an almost equal simplicity that it is a group of "faculties," such as reason, memory, imagination, attention, and judgment. Indeed, we have to abandon the notion of faculties altogether, when we consider the multitudes of interlocking and interdependent reactions that constitute the intellectual processes, and observe how the so-called faculties lose their hypothetical identities by a commingling of processes in any actual experience of thought.

We must accept the cerebral structure as the instrument, and intellect itself as one of the many functions of the total organism in its complex business of living. It is the function primarily concerned with that part of the business which has to do with the continual organizing of experience, whether it be the recognition

of a familiar object or the building of a philosophical system. There are some, relatively a few, whose intellect is incapable of more than simple acts of recognition; and those who can rise to philosophical heights are equally few. These vast differences in intellectual ability challenge us to an analysis of the intellect and an effort to understand some of its mysteries. We recognize it in quickness and accuracy of learning, in ability to recall, in the alert and accurate grasp of principles and subtle meanings, in the ability to apply principles and general facts to specific problems or situations, in flexible and effective adjustment to what is new or strange, in fruitful or creative or challenging ideas, and in all-round sagacity, discretion, and efficiency in the management of one's affairs. Another way to state the case would be to say that intellect may be partially manifested in any number of specific reactions; or it may be more completely manifested in real life events involving problems. The specific intellectual reactions would be moments of remembering, perceiving, discriminating, syllogizing, recognizing differences and similarities, and the like. The general activity of problem-solving would combine any number of these specific intellectual acts into a synthesized procedure, and in any thoroughgoing instance would include insights or hypotheses, and their verification. It is needless to urge that only in these problem-solving situations do we find a mature evidence of brains.

It is perfectly obvious that intellectual activity as we see it manifested is at least in part a product of the environment. One could not very well be intelligent

without the furniture for thought which the environment alone can supply. But is the intellectual life *wholly* a product of the environment? That is to say, is every mind in its beginning but a neutral plate, a sort of wax tablet, upon which experience writes its lessons? The notion is absurd, as every observant person must attest; for how then could we explain geniuses and imbeciles in a common environment, or brilliant and dull children in the same family, or intellectual precocity alongside clumsy wits in the same classroom? And how could we explain interest, effort, and zeal? Quite evidently, something besides environment is involved in the puzzle.

This something must be either physical or nonphysical, but in the spirit of science we cannot admit the latter possibility unless we have exhausted all the physical possibilities. In seeking a physical explanation we naturally turn to the structure of the brain. Perhaps brain size or weight has something to do with it. This thought has prompted some convincing investigations which seem to demonstrate that, within normal limits, size and weight are negligible factors. The table on page 214 gives the brain weights of a number of men of eminence.[5]

As compared with the brain weights of ordinary men, these show an overlapping so great as to demonstrate that this factor is insignificant. Similar negative results have been obtained in comparative studies of the complexity of convolutions.

[5] After Spitzka, quoted from Ladd and Woodworth, *Physiological Psychology*, p. 61.

BRAIN WEIGHTS OF EMINENT MEN

	Weight in Grams
Cuvier, naturalist	1830
Thackeray, novelist	1650
Siemans, physicist	1600
Daniel Webster, statesman	1518
Chalmers, theologian	1503
Agassiz, naturalist	1495
DeMorgan, mathematician	1494
Gauss, mathematician	1492
Broca, anthropologist	1484
Grote, historian	1410
Bertillon, anthropologist	1398
Liebig, chemist	1352

Brains are composed of a large bulk of white matter and a very thin outer layer or cortex of gray matter. This gray matter contains countless cell bodies and their filaments, and it is universally agreed that the part of it that covers the cerebral hemispheres is the central instrument of the intellect. In a microscopical examination of this cortical tissue it has been observed that certain refinements of cell structure and filamental development that are present in the brains of normal people are absent or defective in the brains of idiots and imbeciles. This has led to the supposition that analogous but finer structural differences exist in the brains of people above the imbecile, and that these explain differences in intellectual capacity. This idea is commonly looked upon as a possible theory, although the anatomical differentiations necessary to sustain it have not been found. An intellectual performance, however, cannot be strictly regarded as a simple function of correlative brain cells; as something that happens when a few cortical neurones exchange impulses.

Intellect as a function of the living organism is far more diffuse than this. It is no doubt conditioned by the chemical character of the mass of brain cells and by the readiness of synaptic connections in the cortex; but these are in turn conditioned by the available energy. If we inquire into the source of energy we are led to the organic functions and to the stimulating effects of the endocrine glands. With all these conditions operative, we have to picture a multiplex activity going on among various cortical areas in any intellectual activity. We may safely say, then, that intellect is bound up with the anatomical structures of the brain; but we cannot say that it is the *immediate* function of any structure or set of structures.

All this rather beclouds the part played by heredity as a contributory factor. The intellectual field becomes so spread that it is impossible to anchor heredity to any part of it. We cannot, then, talk about inherited intellect in the same way that we can talk about an inherited Roman nose. This does not mean that we are to eliminate heredity from our considerations. Far from it! But it does mean that we must be warned against any simple thought that brains are inherited in the same sense as a physical feature. Far more clearly it becomes evident that intellectual *qualities* are not inherited. We do not inherit a sense of humor as we inherit blue eyes, nor a taste for vulgar literature as we inherit a harelip. Nevertheless, in the alchemy of heredity it may be that certain factors are bestowed which combine to facilitate one person's development into a humorist and another's development into a vul-

garian, always presuming the appropriate environmental influences.

In any practical situation it is quite obvious that intellect is something more than a native, inborn capacity. It is this in combination with the effects of training and the equipment of ideational material that has been acquired through experience. The notion of a virgin brain engaged in thinking is but a fatuous abstraction; it cannot think unless it has the stuff to think with and about. It is equally true that an environment without a brain to think about it is meaningless. We have, then, the two sets of factors which are utterly dependent one upon the other in producing intellective activity. But when we get this we have something in which the two sets of factors have merged their identities. It is something new, a unique creation, like a chemical compound in which two elements unite to form a novel substance.

There is an inconsistency in the discussions of intellect due to the fact that we continually speak of it as if it were a unit, and even measure it as such; and at the same time we know that it is not a unit but a complex organization of various and diverse functions, elements, associations, combining and interweaving in shifting patterns that are never twice the same. A considerable controversy and a great amount of experimentation have extended over a period of more than twenty years in an effort to clear the confusion surrounding this problem, and even at the present time we are in doubt as to the nature of this unified yet diversified activity. Diversity is shown by the multi-

plicity of functions, by the varieties of intellectual interests, powers, and abilities in a single individual. Unity is shown by the fact that each individual tends to maintain a characteristic mental level. One is bright, one is dull, and another somewhere between.

Whatever this pervading quality is, which tends to hold one's mental activities upon a level, despite their diversity, it must be due to the heredity aspect. Under laboratory conditions, certain tests can be given which probe close to this heredity aspect at a few points; tests, for example, in reaction time, different kinds of discrimination, quickness in different kinds of perception, extent of rote memory, and the like. These are, of course, tests of specific, elementary functions and not tests of total intelligent acts. In an extensive series of such tests made by Spearman, an English investigator, in 1904, it was apparently demonstrated that there is a strong positive correlation in any individual's performances in these tests. A person found to be strong in one specific mental function was relatively strong in others. Although Spearman found "hierarchies" of relationship (groups of performances showing specially close relationship), he felt justified in asserting that knowledge of a person's performance in one function would render relatively predictable his performance in other functions. Spearman concluded that the general correlation could only be explained by postulating a *general factor* running through all performances. According to his theory, any intellectual acitvity would be conditioned by the general factor plus a *specific factor* peculiar to the particular intel-

lectual act performed, and implicit in it alone. Thus his theory is known as the "two-factor theory."

The significant thing is the *general* factor, for it could well account for the part played by heredity. We need but postulate that it depends upon a uniform chemico-physical basis of some kind. Many psychologists, especially of the English school, are very much impressed with the importance of this presumed factor. To quote from one of them:

> Professor Spearman, Dr. Bernard Hart, Mr. Cyril Burt, Dr. Webb and others have collected a very great number of facts of which an immediate and complete explanation is furnished by supposing that "all performances depend in a certain degree upon one and the same *general* factor, provisionally termed General Ability." No other hypothesis has as yet been suggested which so successfully and so simply sums up all the known facts as does the hypothesis of a single general factor; namely, that a single general factor enters into all mental qualities, while other factors, if they are present at all, are, in the case of sufficiently dissimilar qualities, insignificant in comparison with the single general factor.[6]

It is the task of physiologists to define the chemico-physical basis of this postulated factor. Psychologists are concerned rather with its action and effects. There is a strong tendency among some of the psychologists mentioned above to identify the general factor with "voluntary attention," or, as Garnett would prefer to say, *will*. Hart and Spearman, however, believe that this factor consists of a "common fund of energy," [7] we are

[6] M. Garnett, *Education and World Citizenship*, pp. 103, 104.
[7] [illegible], p. 118.

and this theory is in fact more in keeping with prevailing concepts in America. We object to will, in the sense intended by Garnett, because it drives back to a nonphysical source, and is thus contrary to the accepted principles of heredity.

Against this theory of a general factor, Thorndike, the American psychologist, took early issue. He was struck by the fact that the correlations made so much of by Spearman fell short, and in many cases far short, of perfect agreement. He and his collaborators undertook extensive investigations of their own and were even "able to show that between some functions, such as discriminating among the lengths of lines, and others, such as naming the opposites of words, the correlation dropped in groups investigated to approximately zero." As a result of such researches, these investigators wrote: "One is almost tempted to replace Spearman's statement by the equally extravagant one that there is nothing whatever common to all mental functions, or to any half of them." Their conclusion amounted practically to an atomistic theory of mind in which each function is specialized. What correlation does exist they explained by a theory of overlapping parts, which holds that where excellence in one performance tends to equal excellence in another, "this is due chiefly to the fact that the two involve identical elements in their execution." [8]

The present status of the problem seems to be a reconciliation between these two extreme views. Thorn-

[8] Quotations from Leta S. Hollingworth, *Special Talents and Defects,* pp. 15-17.

dike does not claim, and probably never intended wholly to claim, that there is no relationship or common factor running through specific mental acts. He now recognizes what he calls mental levels of sensitivity, association, and analysis, the reality of which is demonstrated by the fact that two performances on one level will correlate more closely than two on different levels.

In this chapter we have dealt chiefly with intellect as a detachable aspect of the total intelligent behavior. There is much justification for thus making the brain activities the center of reference: the cortex is the seat of learning and invention; it is the high throne of reason; in psychological investigations such as those referred to, the reactions dealt with have been purely intellectual reactions. But true tests of intelligence are those in which the individual is engaged in some life event, not in a laboratory experiment. It will appear in the next chapter that these real-life situations embrace configurations so complex and unique that our laboratory technique breaks down. We shall find that intellect alone fails to explain intelligent behavior. The "general factor," whatever it may be, will not be abandoned. It cannot be, in face of the unquestionable native differences in intellect among men. But we shall have to inquire whether this factor, or any other native factor, is constant, immutable, and fatalistic in the total, complex function of mature intelligence.

CHAPTER IX

INTELLIGENCE: A GIFT OR AN ATTAINMENT?

In the preceding chapter we dealt, first, with some general problems concerning the social significance of intelligence; and we then discussed the nature and organization of the intellect. We shall now turn to some matters of practical importance which profoundly concern the basis of personality and the status of the individual in a democratic society.

TRYING TO MEASURE INTELLIGENCE

The use of intelligence tests is now widespread. Many books setting forth their construction have been written, and a large number of recent psychological and educational works contain chapters upon the subject.[1] The reader is no doubt familiar with the fact that each of these tests consists of puzzles, questions, problems, alternatives, and tasks, the solutions of which may be scored by a simple device. The scores are standardized, so that any score may be compared with the averages for the different chronological ages. A given individual's score may equal the average for ten-

[1] Perhaps the most widely read single book is L. M. Terman's *The Measurement of Intelligence.* A good brief account may be found in A. I. Gates's *Psychology for Students of Education,* Chap. xviii.

year-olds, for example, and we then say that he is mentally ten, no matter what his chronological age may be.[2]

The fundamental concept underlying the use of intelligence tests is that these tests measure the native intellectual endowment; or in other words, that they measure the heredity aspect separately. It appears, then, that they are not intended as measures of mental efficiency or ability that in any way includes the results of training, special knowledge, or education in any form. And yet, in seeming paradox, these tests can only measure what they intend to measure by requiring the subject to make gestures or movements or to speak words which are in every case the result of learning.

In the preceding chapter it was pointed out that intellect is something which emerges from the interaction of at least two sets of factors, those of heredity and those of environment, and that it is a unique creation distilled from these factors in the crucible of experience. Offhand, then, it might be affirmed that the "native" part of it cannot be measured. But such reasoning would be like saying that we cannot measure barometric pressure because the pressure cannot be separated from the atmosphere. As a matter of fact, there is no such thing as barometric pressure apart from atmosphere; and likewise, there is no such thing as native intelligence apart from the nurturing environment. Separation for the purpose of measurement is therefore impossible. Science gets around this dilemma by controlling the environmental factors, permitting only the

[2] For an explanation of the chief technical concepts in intelligence measurement, see Chap. xii, pp. 331-33.

desired modifications. As applied to measuring native intelligence, this principle is simple enough in theory, though in practice doubts may be raised as to whether all the affecting factors have actually been controlled. In measuring barometric pressure there is no occasion for this doubt if the procedure is accurate.

The procedure for measuring native intelligence is to include in our tests only such problems and questions as make demand upon an environment which all have had in common. If we are testing children, for example, let us limit our tests to situations which all of them are sure to have had equal experience with. Thus we may ask simple questions about weather, eyes, food, age, time of day, day of the week, common coins, and the like; but not about rare books, ancient history, or the habits of kangaroos. Fairly assured that our questions are based upon a common experience, we still find wide differences among individuals in the scores made in the tests. It is commonly assumed, therefore, that the differences are due to variations in *native* capacity. This assumption is quite justified if all of the technical conditions are exactly met. In a carefully conducted intelligence test it is probably true that these conditions are approximately maintained in most cases (probably with the exception of adults). But even assuming scientific accuracy, we must always remember that an intelligence test is but a simplified sampling, given in an experimental situation. That which is measured is significant, beyond a doubt. In the complex situations of real life, however, intelligence involves numerous and unique factors, and

we have situations far beyond the experimenter's control.

Many students of human nature either ignore or minimize these implicated considerations. Witness, for example, the following quotation from a popular exponent of heredity:

> . . . When we can separate the two forces [heredity and environment] and measure one while the other remains unchanged, we have a case which can not be disputed except by proving that the methods of measurement are wrong. If, as Woods suggests, a farmer puts fertilizer on one acre of corn and leaves the acre next to it, of similar soil, without this artificial stimulant, he can measure in actual bushels of yield what has been the effect of this environmental procedure. He has changed the environment on one plot while the heredity of both plots remained the same. Again he may plant one kind of corn on one acre and corn of a different breed on the neighboring plot. In this case he has changed the heredity while the environment remained unchanged. He can thus easily measure, without argument, his problem of heredity and environment. We see this in every family of children where the environment is practically the same for all of them, yet they turn out in the most astonishingly different ways. One boy may become a village loafer and his brother a philosopher. It would seem indisputable that the main difference in the two boys is not one of environment but one of heredity.[3]

At first thought these analogies seem very convincing. Or do they? After all, is an intelligent human being like an ear of corn? And the environment of our

[3] A. E. Wiggam, *The Fruit of the Family Tree,* pp. 216, 217.

experience—is it comparable to a dirt field? As for the environment, the most important part of it consist of humans like ourselves. The writer quoted above has failed to realize that children in the same family—even twins—never experience the same environment. And as for the individual in whom the intelligent activity occurs, can we regard such activity as mere sproutings of his brain, or a series of mechanical clicks? No, his intelligent activity is an integrated response that may include much of the organism, and is bound to include numerous qualities not found in corn. Its configuration may embrace many of the following associated components: diffuse meanings, feelings and emotional attitudes, imaginal tendencies, interests, antipathies, enthusiasms, sensitive reactions to the attitudes and opinions of others, and promptings of skillful or other motor acts that have become attached to the peculiar situation, or some part of it, in past experience. Any or several of these possible components of the total response combine at once with the external factors of the situation, and thus actually produce a new situation. Thus environment becomes something that is no longer purely external. The *effective* environment, if we can any longer speak of environment, is an integration of the external and inner factors. One's response is not to the external objects or conditions alone, but to those plus the inner factors.

One of the most important factors in intelligent behavior, not possessed by corn, is *purpose*.[4] Try to think

[4] As will be pointed out in Chap. xi, "purpose" is not to be taken in a mystical sense.

of our being intelligent at all without this. What would a brain most highly endowed by heredity be without it? Spurred by purpose one may accomplish prodigies in the field of intellectual endeavor. Imagine the debater preparing his debate to strive for the championship, and compare the intelligence he puts into it with that which he would put into a theme ground out as a classroom exercise. With purpose we attack environment and change it, molding it nearer to the heart's desire, or maybe to the stomach's desire, or some other desire. Without purpose we might indeed be stuck to a cob! With it, we draw into the game a host of collateral virtues—persistency, interest, enthusiasm, alertness, habits of effective study and method, insistence upon accuracy and thoroughness—thus actually developing traits of character that make for efficiency and success.

All these factors which make us different from the vegetable are a confusion to the problem of intelligence testing. It is true, however, that intelligence tests expertly given reduce these irregular factors to a minimum, thus giving us a measure of something that is constant and basic in the individual. This is testified to by the remarkable consistency that has been found to prevail in the use of the tests.

The real test of intelligence, of course, is not the psychological examination but the demonstrated sagacity in an actual-life situation; and it is just here that numerous unpredictable conditions affecting the intelligent behavior are likely to develop. Especially where the feelings are involved has this been shown to

be true. Inhibitions due to fears are common. Attitudes or prejudices surcharged with emotion may block the logical processes. Reverberations of past humiliations or failures frequently inject profound disturbances into the reactions. Because our world is social, we have to do much of our thinking either coöperatively with, or in the presence of, others; and thus there may be drawn into the game, for good or bad, loyalties, exaltations, chagrin, pride, humility, distrust of the self, resentment against authority, or other affective states. All these conditions are well enough known to psychiatrists, but usually in clinical experiences where the cases show marked symptoms. Seldom is it realized that in degrees that may be termed subpathological, almost every one is subject to various inhibitions and disturbances, and perhaps exaltations, of a similar nature. The submerged habits that are at the bottom of these conditions are probably implanted during childhood in most cases. In an illuminating discussion, Burnham has this to say regarding this subject:

> As a matter of fact, in the schools today there are many failures. Since the bright children are often those who fail, one may naturally suspect that some deep-seated psychological cause is at work. Why, it may be asked, does a bright child, when he comes to school, often become unable to do the simplest tasks in a straightforward and satisfactory manner? Why does a cloud seem to come over his mental vision? Why, in the case of others, is there an arrest of the will so that the pupil is unable to apply himself and unable to control his conduct and unable to succeed? The answers naturally given are that school work does not interest the child, that

we do not give proper motives, that teachers do not come into close contact with the children, etc. These answers are all true enough, but can we not come to closer quarters with the conditions at fault, and from a psychological point of view see the psychological causes of the failures that are so frequent?

After explaining that these inhibitions are due to conditioned reflexes, Burnham continues:

Such inhibitions being usually unconscious, the individual himself may not know what it is that handicaps him; and yet in thousands of cases the boy and girl as they come out of school are less efficient and less able to do things in a clear-cut and thoroughgoing fashion than when they enter school as children.[5]

Burnham explains that many of these inhibiting associations have their counterparts in psychic states that tend to enhance efficiency rather than retard it. A spirit of self-confidence, or a consciousness of past successes, may supply just the verve that will carry one triumphantly through a task. In the pathological extreme these may become egotisms that will sometimes drive one to notable attainment. How many actors, preachers, orators are driven to their greatest accomplishments largely by a force of this kind?

Aside from the irregular or disturbing factors thus far mentioned, certain other serious considerations enter into the problem of intelligence measurement. One of them has to do with the influence of training in effective thinking. Let us recall that the intelligence

[5] William H. Burnham, *The Normal Mind,* pp. 358-60.

tests seek to measure *native* capacity. To measure this, it would seem that they must exclude problems that demand analytical or constructive thought, for if they contain such problems they make demand upon *processes* of thinking that are subject in large part to the influences of training. It is a fact, nevertheless, that all the tests in some degree, and several of them to a considerable extent, include just such problems. We must ask ourselves, then, to what extent a score on an intelligence test indicates true native capacity and to what extent it indicates trained ability in attacking and solving problems. One of the interesting discoveries made in testing children's intelligence has been the fact that, upon the average, but with many exceptions, children coming from good intellectual environments get better scores than children coming from poor intellectual environments. This has commonly been explained upon the ground of heredity; but we must recognize the probability of special training due to the peculiar environment. Consider two children of equal hereditary endowment, but in one case an environment that is intellectually barren, and in the other case an environment providing books, pictures, and sources of interest, with wise parental stimulation and guidance, together with watchfulness over the child's use of words, the accuracy of his meanings, and the precision of his thinking. Should we expect, in these two cases, an equivalence in scores? The defenders of intelligence tests would say *yes*. Others will doubt.

We may nevertheless concede, once more, that the intelligence tests reduce the probability of this influ-

ence of training to a minimum. But we must ask, again, how all this bears upon the applications of intelligence in the problems of real life. Here, in the situations that offer the crucial tests, how much of the demonstrated intelligence is due to training in the effective *use* of God-given powers, rather than to those powers in their virgin state? All authorities concede that the training is a very important factor. Indeed, it has been demonstrated experimentally, time and again, that we very seldom perform as efficiently as we are capable of doing, obviously because we are not realizing the full possibilities of training. It must be conceded, then, that intelligence-test scores, even if they are a reliable measure of a native factor, give no precise index of the real intelligence in a life situation. In this connection the following quotation from Dewey is pertinent:

> Discipline of mind is thus, in truth, a result rather than a cause. Any mind is disciplined in a subject in which independent intellectual initiative and control have been achieved. Discipline represents original native endowment turned, through gradual exercise, into effective power. So far as a mind is disciplined, control of method in a given subject has been attained so that the mind is able to manage itself independently without external tutelage. The aim of education is precisely to develop intelligence of this independent and effective type—a *disciplined mind.* Discipline is positive and constructive.[6]

The fact that native intellectual capacity may tend to limit but does not accurately gage the eventual in-

[6] John Dewey, *How We Think,* p. 63.

telligence is testified to, likewise, in the following quotation from Conklin:

> In all men the capacity for intellectual development is probably much greater than the actuality. The parable of the talents expresses a profound biological truth. Men differ in hereditary endowments, one receives ten talents and another receives but one, but the used talent increases many fold, the unused remains unchanged and undeveloped. Happy is he who is compelled to use his talents; thrice happy he who has learned how to compel himself! We shall not live to see the day when human inheritance is greatly improved, though that time will doubtless come; but in the meantime we may console ourselves by the thought that we have many half-used talents, many latent capabilities, and although we may not be able to add to our inheritance new territory we may greatly improve that which we have.[7]

As many writers have pointed out, this problem of training the mind in effective ways of thinking is largely a matter of instilling the proper habits of procedure. But habits of procedure would of course be barren without other kinds of mental acquisition. There is one kind of knowledge, which is also a skill and a procedure, that is commonly recognized as eminently important in all thinking. This is language ability. It is an error to presume that language is merely an *expression* of thought, for it is also, without doubt, a *means of thinking.*

The function of language in the thinking process is a subject that has provoked much conflict of opinion,

[7] Edwin G. Conklin, *Heredity and Environment,* p. 334.

and it must be confessed that the actual psychology of it is somewhat uncertain. The fact of its fundamental importance must, nevertheless, be accepted. Here, as elsewhere, Dewey has contributed some clear thinking. He points out, first of all, that language "includes much more than oral and written speech. Gestures, pictures, monuments, visual images, finger movements—anything consciously employed as a *sign* is, logically, language. To say that language is necessary for thinking is to say that signs are necessary." [8] The language symbols of thought, according to Dewey's statement, serve to convey and fixate meanings, and "since meanings are not themselves tangible things, they must be anchored by attachment to some physical existence."

Carrying his analysis further, Dewey points out "what language does (1) for specific meanings, and (2) for the organization of meanings." In regard to the former function he says, "A verbal sign (*a*) selects, detaches, a meaning from what is otherwise a vague flux and blur; (*b*) it retains, registers, stores that meaning; and (*c*) applies it, when needed, to the comprehension of other things." Emphasizing the *organizing* value of language, he shows that signs are "instruments of grouping meanings in relation to one another."

This grouping finds expression in the formation of sentences and larger complex units, the implication being that the language ability which is evidenced in

[8] Dewey, *op. cit.*, pp. 170, 171. Chap. xiii of this book deals with "Language and the Training of Thought."

the sensible expression is an implicit part of the thought itself. "The chief intellectual classifications that constitute the working capital of thought have been built up for us by our mother tongue." [9]

The relation of language to thought becomes complete among the behaviorists who follow Watson. According to these psychologists, *all* thinking is but a manipulation of language habits. These language habits are not restricted to those of speech, but include any movements that have come to symbolize meanings. In the case of a normal person, most of them are, of course, concerned with speech. Thinking, they urge, is an *implicit* use of these habits; that is to say, the appropriate muscles and organs are innervated, but the overt motion or sound is restricted. Speech thus becomes thought when the language habits are active but unvocalized. Thinking is subvocal speaking, it is said.[10]

The importance of this dependence of thinking upon language, whatever its actual extent, must always be offset by realizing that mere fluency in words may mean quite the contrary of efficiency in thought. Garrulity is no sign of good thinking, and a pedantic vocabulary may be like a dark closet full of gilded hooks but with nothing hanging on them.

And quite apart from the language element in mind, we must still acknowledge the dependence of mature intelligent activity upon the equipment of reliable

[9] *Ibid.*, pp. 173, 175.

[10] See John B. Watson, *Behaviorism*, Chaps. x, xi; also, by the same author, *Psychology from the Standpoint of a Behaviorist*, Chap. ix.

knowledge that has been garnered by the individual from his experience. In the simple situations of the intelligence tests, intellectual reactions are called for that depend upon a common accumulation of knowledge. Thus the tests more nearly confine the factor measured to something that is innate; but in doing so they reduce the intelligence that is measured to mere shreds of the total fabric involved in the intelligent thinking that is called forth by the events of real life. In the events of real life—in the workshop, on the farm, in the home, at the superintendent's desk, in the director's study, at the novelist's table, in the laboratory—we find the highest types of analytical and creative thinking. In all these situations intelligence obviously cannot proceed with such naked intellectual reactions as the tests measure. Such reactions are essential, of course, just as grammar is essential to a poem; but with intelligence as with a poem, its strength or power depends upon what goes into it. Probably the greatest deficiency of the intelligence tests is their necessary elimination of this contribution of knowledge.

A factor of possibly equal importance, however, that must be considered in appraising the total intelligence, is that of manual training and skill. Seguin, a French teacher of defective children, claimed actually to have raised the intelligence of these unfortunates by training them in the dextrous manipulation of objects. This statement cannot be taken in strict literalness, perhaps, but there is no doubt that Seguin's methods were very effective in lifting the defectives to a level nearer their limited possibilities. There has long been a persistent

thought, however, that there is an intimate and subtle relationship between hand and brain. Historically, man's rise in intelligence has been coincident with his development of the use of tools. To say that the use of tools is the *result* of intelligence is to beg the question, for the converse of the proposition may be true in part. Whenever intelligence expresses itself in the creation of tangible things, it does so through the hand, demonstrating clearly a mental-motor unity in these activities. If, then, one has developed a high degree of manipulative skill, that skill must be considered a part of the total intelligent performance. Such a person does part of his thinking with his fingers. We may say of him that his brain guides his fingers; but we may also say that the training that his fingers have received serves largely to guide his brain. The psychology of this relationship may be vague, but the belief in it has been strong enough to influence modern educational practice. The principle introduces a factor that must be reckoned with in considering the total structure of intelligence, and it is very likely that the individual who has neglected the manual end of his development has failed to round out his intellectual possibilities.

THE DOCTRINE OF DETERMINISM

The recent wide use of intelligence tests, together with the great emphasis that science has placed upon heredity, has given rise to a fatalistic doctrine of limitations. According to this doctrine, heredity has drawn a definite line of demarcation in each individual

—drawn it high in some, lower in others, very low in some—and the god of the genes and the chromosomes has willed that this shall be the uttermost limit of the development of the powers of thought. Beneath this line each individual may expand and spread, adding continually to his information, multiplying and perfecting his mental and motor skills, up to the native limit of capacity; but never shall he press beyond that fatal barrier, for to do so would be in violation of a law of nature as truly as lifting one's self by his boot straps would be.

This is a conception which, at first glance, seems simple enough, and there is a wide tendency to accept it as a literal fact. It is a very handy working hypothesis, for it enables us to classify people, and every tidy mind yearns to classify things. We need only to discover the level at which the line of demarcation is drawn in any individual, and that gives us his *mental* level. Then we can place him in his proper pigeonhole.

This fatalistic doctrine is sometimes called *determinism*—a new use for an old term. It presents a problem that will long be in controversy, and one that has within recent years produced a maze of conflicting testimony and opinion. Its significance to democracy and education is quite evident, for it means, if true, that rigid stratification is a fact and that dreams of anything like social and educational equality of the human brotherhood are futile. The deep implications are such as to divide men into rival philosophical camps, and in such cases men are prone to seek their camp first, and then to

select and interpret the scientific data in a way that will support their position.

The camp opposed to the determinists has been forced to make an initial and very important concession. They have had to accept the fact that heredity plays a major rôle in laying the foundations of intelligence. The argument then ceases to concern itself with the possibility of an eventual equality, for there will always be the highly endowed as well as the deficient. The great problem, however, and one that means much to humanity, is this: Has heredity actually established in each of us an insuperable barrier, or may the "mental level" of the individual be moved progressively upward through the influences of training and education? If the latter alternative is true, we must still accept the fact that nature has given wonderful advantages to some and has handicapped others; but we are cheered by the promise that each of us may climb to higher levels if he but properly train the powers that he possesses.

The matter may best be understood by referring to what has been termed "vertical" and "horizontal" development. According to the determinists, we must look upon mental growth in both these aspects. Vertical growth would be the gradual unfoldment of the *native powers*. It would follow biological law, and would reach its fulness when the brain attains maturity, at about the age of sixteen years. Whatever the level reached at this time, there it remains. But while this vertical development is going on, the horizontal development is also taking place. This horizontal growth

is the work of the environment; that is to say, education, training, fortuitous experience. Upon the horizontal plane, one may add to his memories, improve their accuracy, and build his intellectual processes nearer to the inherited limit; but in no case can he lift his intelligence vertically into a level higher than heredity has ordained for him. These claims of the determinists are met by the opposing camp with the declaration that vertical and horizontal growth cannot thus be separately regarded; that in fact the horizontal growth must so influence the vertical, and the vertical must so influence the horizontal, that the two aspects are lost sight of in the intimate nature-and-nurture process of development.

The assumption of the determinists has been founded upon two sets of data, one of which consists of studies of heredity in families, while the other has to do with the interpretation of various tests. The pioneer study of heredity in families was that of Sir Francis Galton, published as early as 1869, under the title, *Hereditary Genius*. In this study Galton set a standard for scientific research in this field, and demonstrated with striking facts that genius—that is to say, distinction in intellectual accomplishment—tends strongly to run in families. His study embraced 977 eminent men, each of whom was the most prominent among about 4,000 persons. He claimed to have proved:

> that a high degree of innate ability was essential to the attainment of eminence however favorable the social advantages, that highly gifted individuals are likely to rise to eminence even against unfavorable circumstances and social rank, and

that genius follows laws of heredity as do such traits as height, complexion, etc.[11]

More recently has been reported A. E. Winship's study of the lineage of Jonathan Edwards. In this line of descent there were, in 1900, 1,394 identified persons, of whom

thirteen were college presidents, sixty-five college professors, sixty physicians, one hundred clergymen, seventy-five army or navy officers, sixty prominent authors, one hundred lawyers, thirty judges, eighty prominent public officials, and a great many successful bankers, business men, landowners, etc. None was known to be of feeble mentality, and none was known to have committed a crime, while many achieved eminence in their profession.[12]

Against these lines of apparently inherited superiority are to be thrown the somber genealogies of the Jukes, Kallikaks, Hill Folk, and others, so well known to students of heredity. In the Kallikak family, reported by Goddard, we have the case of a normal father mated to a feeble-minded mother, from whom 480 descendants have been traced. Of these, 143 were known to be feeble-minded while 291 were of unknown or doubtful mentality. Against these are contrasted 496 descendants of the same normal father mated with a *normal* mother, all of whom were mentally normal except one, which was a case of religious mania.

There has, of course, been much effort to explain this

[11] Joseph Peterson, *Early Conceptions and Tests of Intelligence*, p. 284.

[12] Gates, *Psychology for Students of Education*, p. 434.

tendency for high-grade and low-grade minds to run in families as the effect of common environment, and probably there is considerable truth in the claim. The traditional social and intellectual status of a family must have a large and cumulative influence upon each generation, and such must be particularly true among families of distinction. In families of commonplace traditions, children are much more likely to become habituated to commonplace ambitions and goals. This has probably been more true in the past than at present, however.

Various studies, beyond a doubt, tend strongly to favor the influence of heredity in families. Thorndike, for example, made an extensive comparative study of twins and siblings (brothers and sisters not twins) in the same families, and found that, after a protracted common environment, siblings show only one-half the mental resemblance among one another that twins show among themselves. He also showed that original mental differences among twins do not tend to be ironed out by the common environment.[13]

The present writer feels convinced, nevertheless, that a critical analysis of studies in family heredity will show that they cannot consistently be taken to prove the central position of determinism, namely, the doctrine of fixed limitations; but they do, without doubt, create a strong favoring prejudice in gross effect. They do impress one so strongly with the importance of heredity that it becomes quite easy to pass to the

[13] Edward L. Thorndike, *Educational Psychology, Briefer Course*, pp. 365-68.

assumption that heredity imposes a readily determinable limitation. This assumption becomes still easier when we consider the flagrant evidences of feeble-mindedness on the one hand and of genius on the other. Feeble-mindedness has been shown to be a unit trait which is heritable by Mendelian law; and efforts to teach people afflicted with this degenerate strain have tended to demonstrate the reality of a "thus far but no farther" barrier. Genius, on the other hand, while not subject so far as we know to the Mendelian formula, would seem in many instances to be an example of predetermined mental level.

The following contrast given by Professor Woodrow is sufficient to throw one into a deterministic state of mind:

> The day before his fifth birthday, Francis Galton wrote the following letter to his sister:
>
> My dear Adele:
>
> I am 4 years old and I can read any English book. I can say all the Latin substantives and adjectives and active verbs besides 52 lines of Latin poetry. I can cast up any sum in addition and can multiply by 2, 3, 4, 5, 6, 7, 8, (9), 10, (11).
>
> I can also say the pence table. I read French a little and I know the clock.
>
> Francis Galton.
>
> Febuary 15, 1827.
>
> The only misspelling is in the word February. The numbers 9 and 11 are bracketed because one had been scratched out with a knife, and the other was covered by a bit of paper pasted over it.

By the age of six, Galton was conversant with the Iliad and the Odyssey. At six and seven, he busied himself with

collecting insects and minerals, which he is said to have classified and studied in more than a childish fashion. The following well-worded note proves that at the age of ten he was absorbed in religious questions:

> My dearest papa:
>
> It is now my pleasure to disclose the most ardent wishes of my heart, which are to extract out of my boundless wealth in compound, money sufficient to make this addition to my unequaled library:
>
> The Hebrew Commonwealth of John 9
> A Pastor Advice 2
> Hornne's Commentaries on the Psalms 4
> Paley's Evidence on Christianity 2
> Jones Biblical Cyclopedia 10
>
> 27

Galton is only one among a vast number of men of genius who are known to have displayed exceptional ability in childhood. The majority of poets and musicians show their genius at a very early age. Tasso was famous at the age of eight and Southey wrote dramas before that age; at the age of three, Mozart took piano lessons; at four, he played minuets and composed short pieces; and at five he performed in public. . . . Macaulay read incessantly at the age of three. At seven, he began *A Compendium of Universal History,* and at eight he wrote *A Treatise to Convert the Natives of Malabar to Christianity.*[14]

Woodrow throws these high lights against the somber history of Abbie, a low-grade moron.

Admitted to the New Jersey Training School for Feebleminded Boys and Girls in 1900, at the age of eleven, Abbie

[14] H. Woodrow, *Brightness and Dullness in Children,* pp. 9-12.

was small for her age, left-handed and awkward. She always put the *same foot* forward when going up or down stairs. She knew her letters but could not read; she could not count to ten; she knew some color and form; and she sang a number of hymns that she learned at home. Her sight and hearing were normal, and she was fond of play. Among Abbie's more unfavorable characteristics were a bad memory and a poor power of imitation. She was gluttonous, untidy, untruthful, sly and profane.

Three months after her admission she could thread a needle and sew on buttons, could dust and rub floors a little, had learned to read *A man ran* and *I see a man* (sometimes), counted to twenty, and, with help, could do such number work as this:

1	2	3
1	1	1
—	—	—

For ten years she went to school. "For ten years" runs the report, "her teachers struggled heroically to give her the mastery of something. . . . Within the last few months, however, there has appeared the feeling that Abbie has reached her limit. She will be twenty-two years old before long."

Today she is still small for her age. She can braid cornhusks a little; can make a bed; can iron an apron; cannot count the cost of three one-cent stamps and three two-cent stamps, with the stamps before her; cannot repeat five figures or a sentence of fifteen words; defines only in terms of use; can read a few sentences, spell a few words and write about twenty-five words from memory; knows the days of the week, but not the months of the year; and does not know how many fingers she has on both hands.[15]

[15] Adapted by Woodrow from *The Training School,* vol. vii, p. 182, published by the New Jersey Training School.

Since the World War, data of another type have contributed to the deterministic hypothesis, as a result of the intelligence tests given to a million and a half of the American soldiers.[16] One of the studies based upon these data may be interpreted to indicate a close correlation between native intelligence and occupation level, permitting the inference that the former is, by and large, the determiner of the latter. Assuming the validity of the army intelligence tests, this study encourages, though it does not prove, the central deterministic claim. The results of this study are summarized in the table on page 245. The scores are "raw scores" obtained by adding the correct answers. At each of the occupation levels the scores are *averages*, and consequently there is a great amount of overlapping.

The army tests have been widely interpreted in various other deterministic ways, and this is especially true with regard to certain racial differences that may be read into the results. The assumption is made that these differences are innate and limiting, and independent of language, education, or other environmental influence. One of the bitterest of recent controversies has raged over these interpretations.[17]

The deterministic point of view has taken a gripping hold upon the minds of many educators. A testing technique has consequently developed, based upon the assumption that an intelligence-test score indicates the

[16] Reported in *Memoirs of the National Academy of Science*, vol. xv (1921), edited by Robert M. Yerkes.

[17] See Chap. iii, pp. 67-69.

INTELLIGENCE SCORES AND OCCUPATION LEVELS

Scores	*Occupations*
40- 49	Farmer, laborer, general miner, and teamster.
50- 59	Hostler, horse-shoer, tailor, barber, general carpenter, painter, truck chauffeur, baker, cook, concrete or cement worker, mine drill runner, bricklayer, cobbler.
60- 69	General machinist, lathe hand, general blacksmith, brakeman, locomotive fireman, auto chauffeur, telegraph and telephone lineman, butcher, bridge carpenter, railroad conductor, railroad shop mechanic, locomotive engineer, laundryman, pipe fitter, auto engine mechanic, tool and gauge maker, stock checker, detective and policeman, toolroom expert, gunsmith, marine engine man, hand riveter, telephone operator.
70- 79	Truckmaster, farrier and veterinarian, receiving clerk, shipping clerk, stock-keeper.
80- 89	General electrician, telegrapher, band musician, concrete construction foreman, photographer.
90- 99	Railroad clerk, general clerk, filing clerk.
100-109	Bookkeeper, army nurse, mechanical engineer.
110-119	Mechanical draughtsman, accountant, civil engineer, Y. M. C. A. secretaries, medical officers.
Over 120	Army chaplains, engineering officers.

limit of educability of a child in the various school subjects. This procedure has been encouraged by numerous studies which have shown that there is, in fact, a fairly strong tendency for children to do well in school work if they rank well in the intelligence tests, or to do average work if they rank average, or to do poor work if their rank is poor. This has been shown to be only a general tendency, for there is a considerable overlapping and the various investigations differ as to the average extent of agreement. The determinist claim is that there would be a perfect correlation if it were not for such disturbing factors as defective vision

or hearing, poor health, interfering emotional states, discouraging home conditions, and the like.

IS DETERMINISM TRUE?

The very fact that intelligence and performance in school subjects do not invariably correlate, forces us to recognize these other factors. We are obliged to add *if's* to our reasoning: *if* it were not for the emotional conditions, *if* it were not for insufficient energy, then the intelligent performance could only equal the native capacity, but could not exceed it. When we are dealing with cases in which the intelligent performances are *inferior* to the indicated native capacity, these *if's* may explain away the discrepancy. But with disconcerting frequency, children are found whose performances in school subjects *exceed* what is expected of their measured native capacity.

These discrepancies in the performance of their school lessons arise in cases that are relatively simple from the psychological point of view, for they are concerned only with relatively minor activities such as are involved in formal and artificial tasks. How much greater would be the discrepancies, if we could measure them, when the tasks are those of adult life with their exceedingly complex social and technical implications! The inquiring mind turns again with doubt to the deterministic hypothesis. Does the native endowment, the virgin equipment of brains, set an impassable limit to intelligence? Or is there a shifting zone that may spread both vertically and horizontally in response to effective education?

In the first section of this chapter, in discussing problems in the measurement of intelligence, certain matters were emphasized which bear upon this question. These were:

1. *Purpose.*—Upon the intensity of this depend the effort, zest, and persistency that one puts into an activity. The source of its power must be the body energy, but psychologically it must depend upon numerous interwoven factors built up in the mental life. Related to it are habits of character most important to intelligence and success: will, interest, alertness, accuracy and thoroughness, enthusiasm, and other qualities.

2. *Feeling.*—This enters into intelligent activity in numerous ways. Backgrounds of feeling begin to develop in early childhood, causing fears, prejudices, resentments, interfering attitudes, or, perhaps, exaltation, confidence, driving egoism.

3. *Training in processes of thinking.*—Whatever *native* capacities may be, they are worthless in solving life's problems unless we know how to use them. Learning how to use them becomes the most important consideration of all, and it is just this learning which one gets from education and from all creative experience. Can we separate the trained processes from the native elements in any real intelligent activity?

4. *Language ability.*—Language is in very large degree the instrument of thought—possibly the sole instrument. This being true, intelligence must depend upon one's store of accurate language symbols and his ability to use them precisely and to organize them effectively. This language accomplishment is without

doubt responsive to education, though conditioned by the native quality of one's brains. So too, then, intelligence. Considering the infinite possible permutations of language ability with the thought processes, we cannot conceive of its piling up against an inherited barrier.

5. *The contributions of knowledge.*—Intelligent thought is impossible without some knowledge contributed by experience or education which is relative to the thing or problem thought about. One's power to deal with any type of problem must depend upon his familiarity with the material involved; and his power to deal with the problem must increase as his familiarity with its logical materials increases. Determinism is forced to assume that this increasing capacity can only take place upon a horizontal level. When we consider, however, the intimately wrought fabric of living experience which is intelligence, with all its woven logic and implication of function with the thing functioned about, horizontals blur and disappear.

6. *Manual training.*—There is apparently an intimate and subtle relationship between hand and brain. Manipulative skill is an intelligent activity in which the thinking is done with brain and hand working together, each guiding the other. Training in manual skills and the use of tools would seem to be one way to train the mind and to lift intelligence in general. It appears that there is a manual element in intelligence which must be considered functionally with respect to the various others.

No one of these considerations, perhaps, is a final

and sufficient disproof of the deterministic hypothesis. Its supporters may grant the arguments, but fall back upon the intelligence tests to show that there *is* a fatal factor, laying their argument upon the constancy of the intelligence quotient. This quotient does, in fact, tend to remain constant throughout the childhood of an individual, very seldom varying more than five points up or down.

The constancy of the intelligence quotient is a rather convincing proof that the intelligence tests do measure with fair precision, and barring unusual conditions, a certain heredity factor. It is to be remembered, however, that this constancy has been shown only for the years of childhood. What we have been trying to demonstrate throughout our whole discussion, be it nevertheless understood, is the fact that intelligent activity in life situations is far too complex, involving too many interrelated factors, to be readily appraised by the measurement of a single one. In this connection we may quote the German psychologist, Stern:

> The American psychologists tend to a certain extent to an over-evaluation, assuming that the I. Q. furnishes a kind of general formula for the total mental status of man. This view cannot be held. The I. Q. merely expresses the degree of the reaction, general intelligence, that means the capacity to handle definite objectively determined tasks for thinking. The constancy of the I. Q. makes it probable that the degree of this capacity belongs to the native and permanent characteristics of the individual; we are then justified in assuming in the case of the individual a level of mental alertness and adaptability which is characteristic for him. But: *level is*

not personality! Original impulses, spontaneous interests, special talents, qualitatively determined tendencies, and volitional traits contribute to the formation and development of the intellectual side of the individual in a way which does not necessarily affect directly the achievements in an intelligence examination. Some of these traits may also be submitted to experimentation, but not to the kind of experiment that is represented by an intelligence examination (in this connection one may think of examinations for vocational fitness); other traits cannot be subjected to experimental methods at all, they can be appreciated only by general observation. Thus the individual and irrational structure and the unpredictable development of every personality remains a fact even if we succeed in finding a rational and quantitative index for some of its aspects, especially for its *level* of mental reactivity.[18]

The army tests were an effort upon a gigantic scale to measure the heredity aspect of adult intelligence. The results of these tests have been looked upon as a gold mine of psychological data; but we are now somewhat in the case of the early sea captain who carried to England a cargo of iron pyrites, thinking it was the precious metal, for the army tests have of late been sadly discredited. This discrediting has been chiefly in the nature of a demonstration that it was not native intelligence, exclusively, that was measured by the tests, but in large measure the instilled results of education and other environmental influences.[19]

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[18] W. Stern, "The Theory of the Constancy of the Intelligence Quotient," *The Psychological Clinic,* March, April, 1925, pp. 116, 117.

[19] The best presentation of the case against the army tests is to be found in W. C. Bagley's *Determinism in Education.*

Bagley, for example, determined the relative school efficiency of forty-one states, using the Ayres index, and discovered that the median scores made on army alpha by white recruits from these states correlated with the school efficiency to a startling degree. The actual coefficient of correlation was +.72, with a probable error of .05.[20] In order to refine his study, he selected the states (twenty-six in all) in which 55 per cent or more of the population was native to the state in 1910. By then using the same method of correlation as above, he found that the coefficient was raised to +.82. As a check of these figures, Bagley also presents the correlation of median scores with the rankings of states in per capita circulation of each of ten widely read magazines,[21] number of births of persons appearing in *Who's Who in America* for 1924-1925, and per capita income. In each case he found a very high correlation with army-test scores.[22]

Bagley turned his attention to a study of army-test scores made by Negro recruits with even more striking evidence that the scores reflected educational advantages rather than hereditary factors. Following the same line of inquiry, he studied the "late arrival" groups, meaning those recruits who had come to America so recently as to have had little opportunity for schooling in this country. In these cases he established a ranking of educational opportunity for the countries from which the recruits came, and comparing the

[20] *Ibid.*, p. 68.
[21] After W. G. Reeder, *ibid.*, p. 79.
[22] *Ibid.*, pp. 70-83.

median intelligence ratings, found a coefficient of correlation of +.84.[23]

These brief references to the studies of Bagley and others would seem to offer very convincing testimony that in the case of adults we are dealing with a very doubtful proposition when we assume that army-test scores measure inherited mentality. Interpreting Bagley's thesis, we can only go so far as to say that he has rather successfully discredited the army tests. The studies do not permit us to assert that he has eliminated the heredity aspect from the general problem of intelligence. He has shown the tremendous influence of education upon these scores, as made by adults. It is barely possible that other tests might have been invented which would have measured the heredity aspect of intelligence with validity. This remains hypothetical. The studies have contributed, nevertheless, a considerable amount of ammunition for those who would contend against the doctrine of determinism.

It has already been shown in this chapter that standard intelligence tests, when given to children, do seem to measure with consistency a certain factor that is involved in intelligence. It appears that tests of the same type, when given to adults, break down. This is in keeping with a conviction that has long prevailed, to the effect that advancing chronological age introduces an increasing uncertainty into intelligence testing.

[23] *Ibid.*, pp. 121-123. It is suggested that the degree of school efficiency, reading of magazines, etc., is determined by the degree of intelligence of the citizens of the respective states, rather than vice versa. Bagley seems to have eliminated the argument, however, by an astute analysis of population shiftings, reported in Chap. iv of the work cited.

This is due quite obviously to the fact that experience, training, education weave their influences more and more into the mental processes. The brain may reach its maturity at about sixteen but from that time on if not before, education has its way, dominating increasingly in the amalgamation which is intelligence.

As for determinism, what becomes of it? In the integrating, interweaving, creating experience which builds the power of mind, what naïve conception imputes to a single aspect an exclusive power of limitation? Vertical and horizontal growth become meaningless references, dividing what is indivisible. Whatever heredity contributes to the total intelligent activity will retard or accelerate; will make up-hill work for some, what is easy pulling for others; will carry some to great heights and hold others in the low places. But above actual physical defect in the brain structure stretches the sphere of environmental influence which becomes permeated with cross-associations built up by learning. These effects of learning would not be limited to those we commonly call intellectual, but would include all reactions of attitude, impulse, feeling, or motor equipment that may be component to intelligent attack. Within this sphere intelligence may be actually developed, and this is the task of education.

CHAPTER X

PROBLEMS OF THE UNCONSCIOUS

If all that is claimed by psychoanalysts and mystical psychologists is true, nothing is so important in determining and controlling the personality as the unconscious. In recent years the most popular and sensational psychological literature has been in this field. The works of such men as Freud, Jung, Adler, Rivers, Stekel, and Kempf have been propagated, dramatized, and popularized by a host of lesser writers, some of them quite unequal to the task.[1] The sensational features that characterize both the scientific and popular studies of the unconscious have encouraged a widespread and uncritical acceptance of it. Against this tendency the reasonings of the less romantic and more tough-minded psychologists, couched as they usually are in technical phrasings, have made but little headway among the reading public.

In this chapter we shall undertake to present the prevailing notions in the doctrine of the unconscious, offer some fundamental criticisms, and endeavor to

[1] The basic psychoanalytical works may be located in library indexes under the following writers: Freud, Jung, Adler, Brill, Frink, Pfister, Kempf, Stekel, and Rivers. Morton Prince's *The Unconscious* is standard, though not representative of the school of psychoanalysis. Excellent summaries of the views of the chief authorities may be found in André Tridon, *Psychoanalysis and Behavior,* Part VII; and in R. G. Gordon, *Personality,* Chaps. ix-xii.

arrive at some dependable facts. It is perhaps needless to warn the reader that any discussion of this fascinating and little understood field must be largely speculative.

FOUNDATIONS OF BELIEF IN THE UNCONSCIOUS

We should first try to understand what is meant by the term "unconscious." This is a difficult undertaking if we wish to satisfy everybody. The psychoanalytical school has done most with the conception of the unconscious, and it would perhaps be best to follow them in the main. According to this school, the unconscious has for its content, primarily, the primitive or instinctive desires, wholly or largely sex, commonly referred to as "wishes." Over and above this, the unconscious consists of a host of submerged memories, or "unconscious ideas." "An unconscious idea," says Freud, "is one which we do not perceive, the existence of which we are nevertheless ready to concede on the ground of indications and proofs from other sources." [2] Levine explains that these unconscious ideas differ in kind. "Some can reach consciousness readily, or with a little effort. These are called 'preconscious.' Some cannot reach consciousness, and it is these that constitute the unconscious proper." As Rivers states it, unconscious ideas are those that cannot normally be recalled, but will yield to special conditions such as prevail in sleep, hypnotism, the method of free association,

[2] Levine's quotation. The book by Israel Levine, *The Unconscious*, is an excellent and readable presentation of the subject from the Freudian point of view.

and pathological states. It is important to observe that these presumed unconscious ideas are not merely idle, floating, or latent, but are "ideas of a definite, dynamic character, which do not reach consciousness, in spite of their effectiveness and intensity." It is held that because of this dynamic quality, they possess a tremendous potency in our lives.

Now there are many reasons for believing in an unconscious mind. There is first of all the apparent phenomenon of unconscious thinking. Popular discussions make much of this. Our attention is called to the problems that seem to be solved in sleep or over a lapse of time during which our thoughts have been disengaged from them. Probably all of us have had these experiences. We have awakened in the morning with a key to the puzzle that has vainly intrigued us the night before, or have suddenly glimpsed the solution to some tangle that we have long since shoved into the background as hopeless. We are told that many writers, speakers, and thinkers formulate their thesis, and then go about their other business, confident that when the time for expression comes the unconscious mind will have done the work. Musical composers and poets frequently claim the unconscious as their chief ally, insisting that so far as their conscious processes are concerned, they are but instruments.

Deeper and more mysterious examples of the same phenomenon are those instances of the "gift of tongues" at religious revivals. Similar in nature to these is the now classic case of the working girl of lowly environment who, in delirium, broke forth into a flood of dis-

course in some unknown tongue. It chanced that some one recognized the language as pure Hebrew. Here was a problem. The girl was untutored, she was not Jewish, nor had she lived among people who spoke the ancient tongue. Finally it was ascertained, however, that she had long previously worked in the family of a clergyman who was in the habit, while alone in his study, of reciting aloud various passages of Hebrew scripture. Her occupation had frequently kept her within hearing of these recitations. Nothing else in her experience could explain her miraculous performance. But in the long interval since she had unwittingly gained this knowledge, where or how had it been retained? Only in the unconscious mind, in the form of ideas, according to the explanation given.

Posthypnotic suggestion is another striking argument for the unconscious. It is a well-known fact that a command given to a person while in hypnosis will be carried out upon awaking. A hypnotizer, after placing his subject in a trance, for example, will direct him to turn on the electric lights when the clock strikes midday. He will then awaken the subject and await results. In most cases the order will be duly executed. The subject will explain that he felt some unreasoning need or impulsion to perform the act.

It is through their interpretation of dreams that the Freudians believe they have hit upon one of the strongest proofs of an unconscious mind.[3] Their technique of interpretation has been carefully worked out, but it is

[3] The representative work is Sigmund Freud's book, *The Interpretation of Dreams.*

a matter which need not enter the present discussion. It is maintained that dream interpretation reveals the fact that "the dream may be recognized as the fulfillment of a wish." In a few dreams the wish is quite evident. As Freud points out, to dream of drinking after eating strongly salted food is but a dream method of satisfying a wish which arises from a sensation. We are familiar with various types of this "dream of convenience." They are familiar to childhood. But in most dreams the manifest content—that is, the content as it presents itself while being dreamt or shortly after awaking—bears no direct resemblance to the wish. We may dream of all sorts of objects or happenings which on the face of them are perfectly innocent, but which, according to the Freudians, are really symbolical or substitutive for the real wish. The real wish, according to the Freudians, is one of which the morals and conventions of society have taught us to be ashamed. It is usually a sex wish. We dodge the chidings of conscience and the remorse of a chaste mind—or rather our unconscious does—by disguising the wish.

The powerful and omnipresent sex urge, according to Freud, is the root instinct of life. He calls it *libido*. A storm of virtuous indignation has arisen against Freud because of his emphasis upon this urge, but indignation is not science. Certain scientifically-minded followers of Freud have criticised his theory of *libido*, and have added to it or substituted other fundamental causes for our dream "wishes." They generally agree, however, that these wishes are a reality of the unconscious.

Another group of facts which are claimed to reveal an unconscious mind is comprised in the common errors of everyday life.[4] Freud holds that the slips of memory, tongue, and pen, which so frequently confound or amuse us are not, as we suppose, due to chance, but are really significant of unconscious wishes or purposes. So if we forget an appointment, call a lady Miss instead of Mrs., misplace a letter, use a wrong word (a libidinous one, for example), overlook a name on our invitation list, or what not, it is really because of an impish meddling on the part of our unconscious. Our "slip" was the result of a desire, but we were not aware of it. A somewhat similar explanation is given of wit. Both in the making of jokes and in their appreciation, it is held that we are really expressing unconscious wish tendencies.

The great field from which Freud drew his theories of the unconscious is that of the psychoneuroses. In his clinical work with these cases in the psychopathic hospital at Vienna he originated the now famous methods of psychoanalysis, and as a result of these methods became convinced of the reality of unconscious mental processes. Here we have morbid anxieties and neurasthenia, hysteria and obsessions, compulsions, repressions and delusions: words strange to the layman's ear, but all expressing some degree or type of pathological mental condition. Some of these conditions are but slight aberrations from normality, so slight, in fact, that most of us experience them at one time or another;

[4] The theory is expounded in Sigmund Freud's large volume, *The Psychopathology of Everyday Life.*

but from these the order progresses in varying modes to insanity.

According to the Freudian view, these conditions are disturbances in the unconscious, in which the dominant factor is sexual.[5] While there may be hereditary predispositions, it is the inhibition or frustration of the *libido* which has caused the trouble. The instinctive sex wish, having taken form as idea, has been "repressed" by convention, coercion, or discipline, or in some way it has been defeated or shunted off from normal expression, and the result is more or less of a chaos in the unconscious. This is because the unconscious is the lodging place of the repressed wish. There, behind the curtain that hides it from censorship, it can play its rôle unhindered. It may associate in morbid groupings with other unconscious ideas. Stirring in its unseen depths it may command the emotions, create delusions, and even overwhelm the conscious life. It is held that the repression usually, but not necessarily, takes place in childhood.

A disturbing repressed wish-idea, or group of them, becomes the nucleus of a *complex*. It is the object of psychoanalysis to get at these complexes and drag forth the repressed ideas into the light of day; in other words, to make conscious what is unconscious. If the operation is successful, the wish or idea which led its dark and baneful existence in a region where it was uncontrolled

[5] The reader must be reminded that causes other than sexual are admitted by many psychoanalysts. According to Adler, for example, the neurotic suffers from a feeling of incompleteness. It is his wish to be a complete man that lies behind the neurosis.

is restored to a place in the mental economy which permits of intelligent adjustments.

In their exploratory activities the psychoanalysts claim that they have discovered the true nature of the unconscious; that it is, in fact, a department of our mental life, consisting of a mass of active wish and idea material. They go so far as to say that our entire life is influenced, if not entirely determined, by the unconscious factors. Speaking of the complexes, Tridon says that "they are the most disturbing element in our life, for, unknown to us, they exert a strong influence on all our mental operations and on our bodily activities." And of the unconscious in general, he remarks: "It is not so much our consciousness as our unconscious which *is* our personality. Our conscious thoughts are fleeting and changing, our unconscious is more permanent." [6]

THEORIES OF THE UNCONSCIOUS IN PERSONALITY

A brilliant Englishman, the late W. H. R. Rivers, a firm believer in the unconscious, nevertheless offered some wide departures from Freud. While the latter's method of reasoning was philosophical and largely tinged with a mystical element, Rivers sought to explain his fundamental principles biologically, or at least scientifically.[7] His chief interest was in the mechanism and significance of repression. He holds that suppressed experiences comprise most or all of our un-

[6] Tridon, *op. cit.*, p. 17.

[7] References to Rivers are based upon his book, *Instinct and the Unconscious*, previously cited.

conscious life. He says that there is a definite tendency of mind to force out of consciousness the painful and unpleasant, and reasons at great length to demonstrate that this tendency has been established in the course of biological development.

As Rivers states the case, the suppressed experiences are of very special interest and have a definite meaning to the individual. This interest and meaning are of a kind which, if present in consciousness, would set up activities which would be painful or uncomfortable. The suppressions are natural, involuntary, and unwitting. In their nature they are affective or emotional, and originated chiefly in activities that were in the nature of instinctive strivings of one kind or another. As our infantile life is very largely on the instinctive level, most of our repressions have an infantile origin.

Rivers, agreeing more or less with other psychoanalysts, identifies the instincts with the unconscious. But he groups the instincts under three headings: those for self-preservation, those for continuance of the race, and those for maintaining the cohesion of the group. He thinks there is, then, in the unconscious, a close contact between the suppressed emotional products of past experience and the instincts. Because of this, all our acts which emanate from instincts—that is, which seek to satisfy a wish—are liable to become enshrouded with the suppressed affective tendencies.

If we travel with the instinct psychologists, accepting their principle that instinctive impulses are in the background of all our conduct, we can readily see the great significance of Rivers' theory. Each of our

acts, we should have to assume, partakes of instinct in some degree; and in equal degree each act would be conditioned by the suppressions associated with the instinct. With each person possessing a unique complexus of suppressions, and peculiarly organized, likewise, with respect to the details of his instinctive make-up, we have the mechanism for an unlimited differentiation in personality.

In every theory of psychoanalysis, instinct is a fundamental factor. We must postulate it as the source of those indwelling "wishes" or "cravings" or "desires" which constitute the will behind life's activities. We may reason them all back to sex or *libido*, as Freud has done, or recognize other groupings such as those of Adler, Rivers, or others. At any rate, there is assumed a force, or forces—an impelling, insatiable animism. Driven by it, we seek to wring from our environment the satisfactions that our nature demands. Somewhere in biological history, because of the difficulties in securing these satisfactions, consciousness evolved. It came to permit a control in situations where the attaining of satisfaction was balked.

In primitive culture, life's desires were comparatively simple and direct of accomplishment. Man wanted food, shelter, clothing perhaps, and a mate; and he had immediate, and to him perfectly reputable, methods of securing these. But it appears that civilization has added very serious complications to the situation. It has in no sense released man from his natural desires, but it has put all sorts of obstacles in the way of attaining them. We have codes, morals, proprieties that

have to be observed or dire consequences ensue. Shame and punishments fall upon him who disobeys. There is consequently a considerable damming up of the outlets through which man in a natural state would reach out and attain his essential needs. Human nature is driven in upon itself to the extent that this damming occurs. In this state man is still able to lead a more or less normal life if he has made appropriate readjustments. Upon the nature of these readjustments the fate of the personality depends.

Accepting this theory, it would seem, then, that the great moral problem is one of education in adjustment. Specifically, it is a task of training in habits which yield compensations for crude and natural expressions of instinct. Roundabout and refined modes of satisfaction must be sought. Healthful and "moral" substitutes must be found. Where the love instinct is directly denied, it must seek an outlet in charity or human service. When young people are coming into maturity, their awakening impulses must be diverted or sublimated through healthful social activities, athletics, boy scout enthusiasms, or other absorbing interests. To satisfy his acquisitive instinct, man must be trained to a pleasure in the game as legitimately played, not in the crude and brutal methods of accumulation that a savage nature dictates.

If we accept the principle that man's activities are in large measure a readjustment to meet the urgings of instinct, we have an interesting example in the so-called instinct of mastery. We often hear that by primitive impulse man desires to have his own way, get

what he wants, hold the upper hand, and in general to be unrestrained and unrestricted. This impulse, of course, in its crude form, is entirely out of joint with the conditions necessary to social life. We find many individuals, however, who seem to have modified it not at all. We find others who, if they possess it, have succeeded in sublimating it quite successfully, as, for example, by taking the lead in philanthropic work, teaching, holding office, or engaging in any of the higher activities that command respect and admiration. But there is a large company whose idiosyncrasies we may interpret, with amusement to ourselves, as trivial readjustments to the mastery impulse. Among these are the people who insist upon their academic degrees, those who exact petty rules of discipline and signs of respect, domestic tyrants, lovers of social precedence and display, habitual speech-makers, joiners, paraders, and emblem-wearers. Perhaps, too, we might find here a reason for woman's love of finery and an explanation for the shocking modes affected by the dandy.

Leaving the strictly psychoanalytical field and considering the problem of the unconscious rather as it appeals to the layman, we are at once struck with the idea that our forgotten past plays a very prominent part in our living present. Our personality seems to be largely made up of vague likes and dislikes and inexplicable attitudes which seem to come from some shrouded part of the mind. We are all familiar, too, with those unreasoned responses to situations which we like to call intuitive—those unanalyzable fruits of thought whose mechanism is hidden from us. It is thus

with the brilliant extemporaneous speaker. He is called upon, he rises, and he begins. He tells us how unexpected this honor is, and that he really hasn't come prepared to make a speech. But the language flows. It glints with humorous references. It is embellished with figures of speech. His theme is illustrated and dramatized with apt references and anecdotes. Parallel with the conscious phrasing, something else seems to be working, something beneath the level of volitional control.

We need not, however, resort to special instances for an illustration of this sort of phenomenon. As I look at the table upon which I am writing, I am aware of its several properties, so to speak, without consciously reviewing them. It is wholly and perfectly familiar to me without my having to retrace the experiences which made it familiar. And so it is with a picture upon the wall, a photograph of a mountain scene that I have often beheld. There is a great familiarity about that scene, made up of a host of experiences, observations, and musing contemplations that have accumulated from the times when I have visited the spot. But now as I gaze upon the picture, it is not necessary for me to rehearse in detail all the items that have gone before. At once its charm is there. It is as if all the thoughts which had ever stirred in my mind in response to the scene were now blended in some deep mental abiding place, from which there arises to consciousness only a blur, which is the essence of them all.

Then, again, some one uses a word—evolution, for example. My concept of evolution is built up of a vast

amount of experience in reading, study, and observation. Yet I do not have to retrace all this to grasp the meaning when the word is spoken. In fact, one may discharge a whole battery of words at me, as I am doing to the reader in this paragraph, and each one immediately draws its full meaning out of my stored experience. I do not have to pause at each one and consciously analyze.

What, then, is this psychic activity, creating unreasoned likes and dislikes, intuitions, inspirations, familiarities, and meanings? It must be based upon our past experiences in any case. It would almost seem that the experiences of the present sink back gradually to become blended with our entire historical past, to mingle with it, to be *absorbed* by it. But the idea of its being "absorbed" is misleading. What we should say is that the experinces combine in certain ways, so that blended groups of them form backgrounds against which we interpret any present experience. From the more psychological point of view, this blending would be but that integration which was discussed in our chapter on Habit. The backgrounds thus formed seem at times to be purely intellectual, and at other times to consist chiefly of feeling. This accumulated past appears to form a sort of substratum of the personality, providing the basis for the ever changing *now* that we are.

Let the reader be reminded that, in psychoanalytic doctrine, mental life below the conscious level is assumed to consist of a fund of wish-energy and of an upper stratum made up of submerged memories. The former

continually shows outcroppings into consciousness in the form of wish-ideas. When our moral consorship suppresses these back into the unconscious, they return to the mother that made them, so to speak. They resume her nature and become mere energy, urge, or tension, "pushing for discharge." But the upper stratum of the unconscious is different. It consists of unconscious ideas of all sorts, not merely wish-ideas. These may lose their separate identity, but they remain *idea*. It seems then, as the psychoanalysts would have it, that the unconscious consists of two volcanic reservoirs that flow into one another, the one containing instinctive desires and the other containing unconscious ideas which are the product of experience.

As the psychoanalysts view the matter, it is the so-called unconscious ideas that wield the great differentiating influence in our personality. If, for the sake of argument, we grant the reality of those primitive impulses which the psychoanalysts make so much of, we are nevertheless, with regard to them, pretty much all alike. But in the unconscious ideas are to be found most of the modifications of mental life that have come about in each individual's experience. Here, according to Frink, "is the source of the differences between people, between personalities"; for in the unconscious ideas "reside all the controlling forces derived from education, culture, morality, judgment, and reason." [8] These controlling forces, in the form of unconscious ideas, stand as a screen, to use Freud's metaphor, between the primitive desires and consciousness. Thus the primi-

[8] H. W. Frink, *Morbid Fears and Compulsions*, p. 71.

tive desires can only express themselves in ways acceptable to the ideas of the unconscious; otherwise abnormalities result. These desires, according to this theory, are the fundamental energies of life. To grant to the mass of unconscious ideas the function of directing, inhibiting, and modifying them is to recognize it as the dictator of the personality.

Considering the unconscious as the product of our racial past and of life's embedded experience, we see clearly the meaning of Bergson when he says:

> What are we, in fact, what is our *character,* if not a condensation of the history that we have lived from our birth—nay, even before our birth, since we carry with us prenatal dispositions? Doubtless we think with only a small part of our past, but it is with our entire past, including the original bent of our soul, that we desire, will and act.[9]

IS THE UNCONSCIOUS A REALITY?

In the chapter on Instinct, it will be recalled, an effort was made to lift the instincts out of the limbo of mystical ideas. We undertook to demonstrate that the true instincts are very few in number, that they are relatively rudimentary, and that they consist of neural mechanisms that facilitate certain specific adjustments.[10] Those more complex reactions, traditionally known as instincts, we endeavored to explain as habit systems developed from the simple instinctive mechanisms. The so-called urges were admitted as indubitable facts, but it was denied that they are smoldering

[9] Henri Bergson, *Creative Evolution,* p. 5.
[10] Pp. 112 *ff.*

psychic forces lying at the core of our being. They were looked upon as dynamic states of feeling brought into being only when there is a real or incipient discharge of energy along the neurones involved in a habit system. At other times, we said, they do not exist.

If we accept this matter-of-fact conception, we deprive the unconscious of its most cherished material, for according to psychoanalysis the root of the unconscious is composed of nothing more than fundamental instincts lodged in it as psychic realities. Obviously, both hypotheses cannot be right, so we have a clear-cut issue between the scientific point of view espoused in these chapters and that of the mystical and romantic school of which Freud is the most outstanding exponent.

It may still be pointed out that we have changed the situation but little if we extract the "wish" or "wishes" from the unconscious and plant them in habit systems. As a matter of fact, however, it makes a profound difference. For one thing, it places us upon solid ground. Instead of struggling with elusive wraiths, we are dealing with factors that have a fairly understandable physical basis. Also, it is important to know that the wish, or "urge," is a product of experience, is dependent upon the situation, and is not a perpetual psychic hungering.

With Freudian directness, the reader will no doubt insist that the sex urge, being so potent and enduring, cannot be argued out of the unconscious and casually defined as a by-product of experience-created habit systems. It is so real, universal, and impelling! So it

is. But it must be remembered that our nervous systems are constructed in such a manner as to give numerous and intense satisfactions to various kinds of stimulation. From babyhood, certain sensitive zones afford pleasure when stimulated, and from then on to maturity the field is augmented. The habits developed in bringing about these satisfactions are like other habits that afford satisfactions. They are strong and easily stimulated. Even thought images will bring them to incipient or full response. The memory of the intense satisfactions involved is more or less consciously in some minds almost continuously, and this is a fact not only true of sex responses, but in some instances of other kinds. The artist in the midst of creating a picture knows it. So does the opium addict. For the artist we do not have to assume a subliminal wish. Much more obviously in the case of the addict, it is unnecessary to seek a psychic force in the unconscious as a motivating cause.

In regard to unconscious mental processes generally, as, for example, unconscious thinking, the great difficulty lies in trying to conceive of mind at all as existing outside of consciousness. One writer states the case in these words:

> The only evidence we have of anything in ourselves beyond bodily processes is our experience of our own conscious processes. And the only things which we can call "mind" or "mental" with any intelligible meaning are those conscious processes. Anything in us which is neither conscious nor physical is therefore something unknowable and indescribable, or indescribable except in purely negative terms.

And further:

> To ask us to think of something which has all the characteristics of a wish or feeling except that it is not conscious seems to me like asking us to think of something which is red or green, except that it is not a colour.[11]

There are various theories concerning mind, but it may be said that, with the outstanding exception of Morton Prince and a few who hold similar views, the advocates of the unconscious believe that it is a separate and individual existence within us, and "made out of some stuff which is definitely not material and which we can properly speak of as mental or psychical." But opposed to this is the theory that mind is a manifestation which can occur only when a related neurone activity takes place in the cerebrum. According to one theory, mind is a free entity. According to the other, it is in some way the product of, or correlated with, the physical activities of the brain.

It requires a distinctly mystical mood to adopt the former theory, and such a mood is not that of science. Science may be wrong, but it has very strong empirical grounds for the inference that consciousness cannot be considered apart from physical function. As Bosanquet somewhere says: "It seems to me that the fertile point of view lies in taking some neuroses—not all—as only complete in themselves by passing into a degree of psychosis." While in strict logic the converse proposition need not be true, it is none the less generally

[11] G. C. Field, in a symposium, "Is the Conception of the Unconscious of Value in Psychology?" in *Mind,* Oct., 1922, p. 214.

accepted as a scientific dictum that there is "no psychosis without neurosis." We think of consciousness, then, as occurring only in simultaneous association with an activity of neurones in the cerebrum. This leads Dunlap to the following significant statement:

> The Freudian doctrine of consciousness as a *stuff* which, after it has functioned, is stored away somewhere like the printer's type which is returned to its case after being used, has no more empirical basis than has an exactly corresponding conception of finger movements which, after having occurred, are somewhere stored up as motionless movements. Just as the movement exists only during the motion, so consciousness exists only while one is conscious: and just as the original occurrence of the movement leaves biological structures so modified that the movement may occur again, so consciousness, occurring once, leaves the biological mechanism so modified that it may recur.[12]

He explains further:

> Suppose I think of diving into a pool. The psychological reaction may be one of a large number: let us suppose it to be the saying of the words "dive into a pool." Suppose that next I turn my thoughts to mechanical subjects, and puzzle over the designing of a complicated piece of apparatus. Suppose that for twenty-four hours afterwards the pressing demands of a busy life keep my thoughts occupied with other things than pools and diving, until the sight of the same picture which first brought up the thought of diving brings it up again.
>
> Where was the thought in the meantime? An unscientific

[12] Knight Dunlap, *Mysticism, Freudianism and Scientific Psychology*, p. 124.

psychology may answer: "In the unconscious mind"; but if we answer in non-mystical terms, we must say, "nowhere." The thought didn't exist at all in the intervening hours. . . . That which really persisted was an altered condition of the neurones: not a specific reaction or neural discharge, but an adjustment such that the discharge or the complete reaction may occur again on the proper stimulus.[13]

A thoroughgoing inquiry as to the reality of the unconscious would necessarily lead into the problems of dreams, hypnosis, and psychopathic phenomena. It must be confessed that the scientific schools have fallen short of the psychoanalysts, in that they have failed to work out a complete theory and technique in these fields. So far as scientific thinking progresses, however, it will without doubt maintain the same stern skepticism of all naïve notions that would separate consciousness from physical process. In the meantime, men like Morton Prince and William McDougall are contributing much helpful thought in these fields.

We may now take a step forward with the inquiry. If there is no unconscious mind, may we still admit that there are mental processes that lack consciousness? It would seem evident that such is the case. In making this assertion issue is taken with those who find it impossible to "conceive of mind at all as existing outside of consciousness." If they object to a "consciousness" of which we are unaware, well and good. But to conceive of nonconscious mental processes is quite consistent within scientific terms.

[13] *Ibid.*, pp. 160, 161.

Our conception harks back to habit. Let it be recalled that mental associations follow the laws of habit. Any linkage across cortical neurones reduces resistance in such a manner that when the proper condition of affairs again arises, the impulse will travel over the original field. Repetition strengthens the connection. The plasticity of the cortex favoring these linkages is extremely great. Our theory holds, it will be remembered, that consciousness is a quality implicit in these cortical activities. This was the meaning of Bosanquet's remark, quoted a few pages back: "The fertile point of view lies in taking some neuroses—not all—as only complete in themselves by passing into a degree of psychosis." From this quotation the inference might be drawn that where there is once a psychosis there is always a psychosis. But this is probably not the intention. The words "not all" are significant, for we are permitted to assume that some associations occur without consciousness. The word "degree" is likewise significant, for it suggests that the consciousness may be considered as on a graduated scale from intense attention down to zero, which is indeed a well recognized truth. We may with some confidence conclude, both from these statements and from observation, that consciousness is but the transitory or intermittent quality of any cortical activity. The case is somewhat similar with skills, as telegraphing, for example; for in the acquirement of such a skill we focus the attention upon every act, but when proficiency is reached, one is able to send a message even while carrying on a conversation. This is but repeating what was

said in the chapter on Habit, where it was pointed out that habits possess this peculiar quality of acquiring mechanical autonomy. This does not mean that habits lose the capacity to evoke attention, but rather that they acquire the capacity to function without it. It is true that habits involved in skills differ from cortical associations, in that the latter are conveyors or concomitants of consciousness. The motor habits are one step removed, so to speak. Nevertheless, the analogy is very suggestive.

These facts should explain so-called unconscious thinking. We may conclude that much, nay most, of our mental processes go on at a low level of consciousness and frequently below the threshold. Low-level thinking is in fact a common experience. We often become aware that connected and intelligent thoughts have been occupying the mind while the attention has been mainly engrossed elsewhere. We need only abstract from such thinking the modicum of consciousness that accompanies it to reach the unconscious level. Upon this level the neural activities may still perform. We could not then say that we are engaging in unconscious *thinking*, because thinking is a conscious process; but we may be permitted to assume that some of the steps in a continual mental process have been made *without* thinking. It is reasonable to suppose that some thought, or sequence of thoughts, starts a catenation of nonconscious cortical associations, to eventuate in consciousness again at some point. Such a hypothesis would offer an explanation of many of the phenomena termed intuition, inspiration, conceptual

grasp, unconscious problem-solving, prejudice, and the like.[14]

COMPLEXES, MALIGN AND BENIGN

. . The foregoing leads us to a consideration of one of the chief problems of the unconscious—that of the complexes. The word "complex" is used with much hesitancy because of its popular abuse, but it is deemed advisable to retain it as a valuable word when used intelligently. The complexes were briefly discussed in the chapter on Feeling, for they are a phenomenon of the emotional life; but as they are an essential part of the current concept of the unconscious, the present chapter is quite appropriate for their further consideration. It is also hoped that the discussion in the preceding sections of the present chapter will add more light to the understanding of them.

In an earlier part of the chapter, it will be recalled, a complex was defined under the doctrine of the Freudians as, fundamentally, a suppressed wish-idea or group of them. The doctrine holds that the ideas are suppressed because their normal expression comes into conflict with the prescriptions of moral and conventional life; and being suppressed they maliciously intrigue both with other unconscious ideas and with the emotions to set up morbid conditions of all kinds.

Let us now modify and enlarge this conception of the complex. In the first place, we shall not limit it to the suppressed wish-idea, but will say that it consists of a persistent organization of emotional tendencies of

[14] *Cf.* the views of Morton Prince in his book, *The Unconscious*, Lecture vii.

any sort. Secondly, we will expand it so that the term will include not only the unusual and morbid mental states, but also many harmless, and even benign, phenomena of everyday experience for which we commonly employ the term "sentiments." A definition which comes very near to this thought is that of H. W. Frink who, while still holding to the doctrine of unconscious ideas, says that a complex is "a system of connected ideas, having a strong emotional tone, and displaying a tendency to produce or influence conscious thought or action in a definite and predetermined direction." Of this system of connected ideas, he says:

> Some of the elements of the group are doubtless recalled frequently, others seldom, a great many others never. That is, the biasing agent consists very largely of unconscious ideas. . . . A great part of our conscious activities is determined by such groups of thoughts, only a few members of which are ever in consciousness. We have complexes concerning the different members of our families; complexes relating to each one of our important loves, hates, ambitions and recreations, and complexes concerning our politics, patriotism, pride, morality.[15]

We have attempted, in this chapter, to dispense with the theory of mystical, unconscious thought entities, and to set up in its place a theory of nonconscious mental processes which operate as habits. With this interpretation of Frink's "unconscious ideas," we shall accept his definition of the complex in the ensuing discussion.

[15] Frink, *op. cit.*, pp. 38-39.

As a very simple example, let us suppose that a young child had been badly frightened by a cat. The experience is so intense as to establish a habit of fearful response to cats. In time all memory of the original experience may disappear, due possibly to the fact that at first the thought of it was deliberately discouraged or kept out of consciousness by the child because it was harrowing. *But the emotional habit remains.* It may have lost much of its potency, it is true; but throughout his life the individual retains a distinct tendency to fear the harmless animal.

The mechanism of this elementary complex suggests that, in the total neurological organization of the individual, some part or segment had become detached from the conscious activity without losing its responsiveness. If we think of these detachments as increasing in scope and complexity, we may see the possibility of relatively important segments of the personality being cut off into autonomous parts. Morton Prince has developed this concept at much length under the term *dissociation.* An "unconscious complex," as he sees it, is one type of dissociation. He elaborates the various phenomena of dissociation, ranging from moments of intellectual dissociation ("coconscious" activity) to complete dissociations of personality.[16]

The neurological pattern of the complex may readily become attached to other stimuli than the original one. Let the reader recall the experiment reported by Watson, explained in the chapter on Feeling, in which a baby's instinctive fear of a loud noise was conditioned

[16] In his book, *The Unconscious.*

by a white rat.[17] In that experiment it was shown that a fear response may be extended from an original stimulus to one that accompanies it. The baby became then and there fearful of white rats because a white rat appeared simultaneously with the alarming noise. But more than that, as was demonstrated, he acquired a tendency to fear of certain features of a white rat when any of these appeared in an otherwise neutral setting. The fear originally engendered by the bell was carried through two orders, becoming attached to any furry object. The experiment ingeniously shows how any emotional habit may become attached to a stimulus that is twice or thrice or even further removed from the original cause. Any such emotional habit, in a person of neurotic temperament, is likely to become a source of morbid disturbance. It is then on the way to becoming a malign complex.

Fear of inclosed places is a somewhat frequent example of the complex, although a fear of this sort in many people never reaches a morbid state. There is the case of a person who was never able to sleep in a dark room. Whenever she found herself in the dark she suffered from a sensation of smothering. An analysis of her childhood experiences disclosed the fact that at one time, while at play, she had been shut into a large trunk and terribly frightened. Her fear at the time was due chiefly to the thought that she would suffocate. The darkness of the trunk became a conditioned stimulus which operated in later years to cause her sufferings. She never realized the significance of it

[17] Pp. 142-143.

until the analysis brought out the original association. This enlightenment was the beginning of her cure.

A similar case is reported by Rivers in his book, *Instinct and the Unconscious.* It is that of a young British medical officer who developed shell shock after long duty in the trenches. Through analysis Rivers discovered that in boyhood the patient had been for some time confined in a small cave which he and other boys had dug. An emotional tendency was thus established which evidently produced no disturbing effects until the excessive excitements of war had broken the nervous stability. The similarity of the dug-outs to the cave of the original experience then served as an effective stimulus to restore the fear reactions of the boyhood adventure. The patient, of course, knew only the fear, without any consciousness of its origin.

In psychoanalytical practice, the complex is presumed to have a cause traceable to a specific episode or series of experiences in early life, usually in childhood. In strict Freudian theory, the causal experience was in some way involved with the sex impulse. In the two cases of fear complex cited above, the Freudian would not be content with the simple causation there explained; but would probably succeed to his own satisfaction in making the original experiences symbolical of, or relative to, some deep-seated sex disturbance.

This insistence upon the sex impulse as the basic factor has a philosophic foundation in the theory that the instinctive life is reducible to the reproductive urge. But a more practical reason lies in the fact that most of the serious and disturbing complexes would, by social

pressure, be identified with sex experiences. This is because all manifestations of sex impulse are so thoroughly taboo in conventional life. Freud worked his theories out from his clinical practice, and it is just there that he would encounter the morbid pathological cases most likely to result from the thwarted sex impulse. While he has raised a storm of protest because of his emphasis upon this urge, he has at the same time given a much needed and effective blow at prudishness. He has encouraged that sensible attitude which recognizes that the sex function is as natural as any other. To that extent he has modified the doctrine of original sin. It becomes quite evident that if eating were regarded as sinful and mentioned only in whispers, so that children were forced to the most secretive practices to satisfy their hunger, we should have but another great source of neurotic emotionality.

In the chapter on Feeling, mention was made of those emotional phenomena which arise from a fixation upon the parent. Our theory that complexes are due to emotion habits may now be applied to these cases. It was pointed out that the sex responses have their tentative beginnings in the stimulation of the sensitive zones, brought about by the necessary ministrations as well as the love-prompted acts of the parent. This makes the parent the original source of certain pleasurable experiences. In the course of normal development, as the sex instincts matured, they would be transferred to other persons than the parent. But certain things may happen to prevent this transfer. The child may be cloistered, guarded, and warned against per-

sons of the opposite sex; and at the same time, while instinct and habit are developing, the parent may continue a too sedulous practice of the love-prompted acts. Given these conditions, it is too probable that the parent will become the focus in the child's sex life. This situation, in early life, establishes emotional habits which will persist if encouraged. The child, grown to youth, will form other companionships, but the old habits will continue in force. The life of feeling has formed attachments with the mother's face, her smile, her voice, her touch; and these attachments have become so strong that no other person can succeed in eliciting quite the same exquisite response. Let the individual, whose habits have been thus formed, marry or become involved in a love affair, and there may then result an emotional conflict which will lead to complexes or other serious psychic complications.

In this book we are not primarily interested in the personality of the abnormal, and it may seem out of place to consider such complexes as the kind just described. Fortunately, most of us are fairly free from morbid conditions. But probably all of us, in greater or less degree, are the victims of somewhat similar but less serious emotional habits. It would be most extraordinary for one to grow to adulthood without having had experiences that would set up certain tendencies to unpleasant and disturbing emotional response. Habits of fear are thus established, and they are indeed ubiquitous. The case is recalled of a girl who, between the ages of six and seven, was attacked by a mad dog, at another time fell and cut her head so that it had to

be stitched under an anæsthetic, upon a third occasion was knocked down and run over by an automobile though not seriously injured, and finally was submitted to a tonsillectomy. It would have been miraculous for this child to pass through such a series of incidents and remain unmodified in her emotional reactions. If highly sensitive, any one or all of the experiences could have set up fear habits that would persist indefinitely.

Let any one of us frankly examine his behavior, and he will doubtless discover that he carries about with him some of these fear habits. The possibilities are limitless, but there are few who will not discover, even in the following limited list of fears, one or more that represents a truly emotional setting in his behavior; fear of the dark, of ghosts, of hospitals, of officers, of superiors, of groups, of germs, of firearms, of certain animals, of worms and snakes, of certain books and doctrines, of lawyers, of teachers and professors, of medicines, and even fear of fear.

The emotional state in some of these fears may be controlled and relatively slight; but it is frequently of sufficient strength to make their experience quite unpleasant and embarrassing. A person who is usually well poised may, to his own exasperation, find himself quite disturbed in his approach to so harmless a person as his child's school-teacher, little realizing that his embarrassment is but the recurrence of emotion habits formed in childhood.

While most of these fear habits are traceable to definable experience in the past, they may also arise from suggestion, or from prolonged morbid attention upon

some aspect of life. In childhood, suggestion is an especially important factor in creating fear of the dark, of bogies, and the like; and such fears, though modified through experience, may persist. Morbid introspection as a causal factor produces, for example, those hypochondriacs who are continually and fearfully dwelling upon the state of their health. The fear of impotency, likewise, may develop from mental fixation as well as from specific experience, and reach such strength as to bring about, in more or less persistent form, the result dreaded.

A case came to the attention of the writer in which an apparently strong and healthy man became so obsessed with the fear of germs that he washed his hands scores of times a day, went to absurd extremes in the changing of linen and undergarments, avoided with dread every stain upon the sidewalk and street, and with the greatest precaution kept to the opposite side from cellar openings and gratings. No inquiry could reveal any cause for this other than a prolonged study of the subject of germs. Impurity complexes such as this are by no means rare, and are usually traceable, especially in the case of women, to some experience in the realm of sex.

The fear complex, ranging from relative harmlessness to the extreme neurosis, is but a single type. As a matter of fact, the possible manifestations are most varied. In the chapter on Feeling, under the subtitle Feeling versus Brains, some of the forms are suggested. Prejudices, likes and dislikes, attitudes, hobbies, studies, and interests are all more or less in the nature of

complexes, depending upon the degree of feeling attached to them. Love is the master complex.

The emotionality of our complexes is often of sufficient strength to affect our behavior in visible and sometimes amusing ways. Outbursts of temper, flarings of resentment, timidities, oppositions to reason, floods of sentiment, and demonstrations of affection are commonplace examples. Many of the possible expressions are not only harmless but eminently human and benign.

The so-called inferiority complex, while frequently partaking of the element of fear, sometimes expresses itself in emotionally tinged behavior that is quite self-assertive and arrogant in character. Some experience or sequence of experiences in the past, some unfortunate influence of suggestion, or perhaps a thwarted ambition, may have created in the individual a sense of incompleteness, inability, or weakness. The sense of inferiority may have to do with one's stature, prowess, appearance, mentality, or what not. In any case, various emotive tendencies have become involved. These are stimulated when any situation conditioned to them arises. In response to the resultant feelings, the individual may manifest certain habits of action that have become attached to them. He may shrink, or assume a masterful air. He may become glum and morose, or undertake to voice his opinions and monopolize the conversation. He may seek to avoid notice by assuming the most inconspicuous apparel, or, on the other hand, he may endeavor to counteract his insufficiency by a gaudy attire or a resort to distinguishing affectations.

A case in illustration is that of a man whose inferiority obsession arose from the fact of an inferior education. Being thrown continually with people of a higher culture and training, he was subjected to humiliating realizations of incompleteness. Habits of behavior in the nature of defense reactions developed. He became offensively contemptuous of all things "high-brow." Teachers were all "grafters" and "educated fools." The schools were hopelessly misguided and ineffectual. Nothing in education was right. As Bret Harte would put it, "his language was frequent and painful"; and in his efforts to prove that he ranked with the best in spite of a meager education, his manner grew loudly controversial and bombastic.

It has been hinted that the complex may take on a benign as well as a malign character. It is quite obvious that habit tendencies of feeling may be of a perfectly wholesome kind, and may group around objects or ideas that are entirely desirable. We spoke of love as the master complex. Consider love not only in the narrower sense, as between individuals, but in the broader sense as love of country, love of an ideal, or love of God. In any case, a constellation of deep-seated feeling habits is involved. These are more profound than reason and are tremendously potent as factors in the personality. Regarded in this way, love is no disembodied psychic force or floating idea in the unconscious, but a complex of organic tendencies. Need we deny it all due divinity on that score?

Love, as a complex, has this peculiarity: in its normal expression it is wholesome and desirable, and so

benign; but in its abnormal expression it is capable of disrupting the psychic life, and is then malign. The difference between the one case and the other is a question of whether there is conflict and suppression or not. If the love feelings center around an object that is morally unattainable; if they are regarded by the person as illicit; if they are associated with habits that are frowned upon or abhorrent, then the resulting conflict may bring about a suppression that is malignant in its effect upon the personality. But if, on the other hand, the feelings and their expression are regarded as perfectly moral and permissible, we have a complex without harmful components—one that is wholesome and good.

We have the same combination of possibilities in our enthusiasms, loyalties, ambitions, and interests, only in these cases the probability of conflict and suppression is much less. Certainly some people are much more given to enthusiasms than others, and these individual differences are without doubt due to original qualities of the nervous system and to varying environmental influences. Be that as it may, it is quite evident that an enthusiasm is strongly set in feeling. All things that forward its realization are sources of pleasurable thrill; and all things that are inimical to it stir, in some degree, fear, anger, resentment, or displeasure. All these reactions are constellated feeling habits grouped about the central idea. They are conditioned responses, in that they are attached to innumerable aspects or elements which the central idea embraces.

Ambitions and interests may differ from enthusiasms

in quality and degree, but we can hardly conceive of them as coldly intellectual conditions. Take from either of them all reactions of feeling, and you have left but a static and abstract state of thought. Neither pleasure nor pain would be attached to it. It would not be an ambition or a desire. It is the complex of feeling habits that makes these human motives dynamic.

The conception of the complex advanced in these pages may appear inadequate in the judgment of many. Those whose interests have centered about the phenomena of the neuroses will especially object to a definition of the complex which does not look upon conflict and suppression as necessary and characteristic conditions. We have taken the position that where conflict and suppression exist we have the conditions for a malign complex, and where they are absent we have the conditions for a benign one. In either case there is a constellated grouping of feeling habits.

CHAPTER XI

THE DYNAMICS OF BEHAVIOR

Woodworth has remarked that "the field of human motives is as broad as the world that we can deal with and understand." We deal with the world and understand it because of the habits we form which integrate us with the world and constantly relate us to it and it to us. These habits, as we have seen, may be relatively simple, direct, and constant, as in the case of all our habits of convenience; or they may be fluidic and modifying, merging into more or less shifting and interweaving systems in response to the changing social and other environmental conditions. We have also seen that these habits tend to constellate into systems which sometimes are fairly stable, and that they involve reactions that are motor, intellectual, and affective. These systems may form in response to causes arising outside us or within us; they may be momentary or drawn out; they may be directed toward goals that are immediate or remote.

We may with justification assert that not one reaction takes place without motive, if in so stating we employ the word with a knowledge of what we mean. In the reflex contraction of the pupil of the eye, for example, there is a motive which lies in the dynamic condition of certain stimulated neurones. At the other extreme we may say that there is motive, or motives,

in the agitation of a rebellion or in the devotion of a martyr. In studying motives it would therefore seem that we might easily become involved in meticulous analysis. As students of personality, however, we are primarily interested in certain broader aspects of the problem. We want to know why men do things, and especially what leads them to do big things. We want to know what lies behind enthusiasms, what motivates gripping interests, what drives men to sustained efforts, deeds of leadership, organization, and accomplishment.

THE "KINETIC DRIVE"

The adaptation of man and kindred animals to environment is secured by a series of physical and chemical reactions which are the outward expressions of a transformation of energy, by which the forces latent in food products that have been appropriated and stored in the organism are released to produce heat and motion.[1]

The principle here concisely stated by Crile must apply to each and every reaction, be it movement, thought, or emotion, that man may make. To modify the principle ever so little is to abandon the thesis that all the phenomena of our life and consciousness are dependent in one way or another upon the chemico-physical structure for their manifestation. Whatever may be the nature of consciousness, and whatever "spiritual force" may be, we seem obliged to assume that their energy is relative to the energy of the physical parts involved—the appropriate tissues, organs, glands, or brain area.

[1] G. W. Crile, *Man an Adaptive Mechanism*, p. 157.

The body must be looked upon as a highly complex and differentiated organism which, along with its many functions, possesses the power to transform potential into kinetic energy. The potential energy, conveyed to the myriads of cells by the circulatory system, is transformed at the places where the need arises and in amounts more or less relative to the need. The principal organs involved in the transformation of energy are probably the brain, the thyroid, the adrenals, the liver and the muscles.

> The brain is the great central battery which drives the body; the thyroid governs the conditions favoring tissue oxidation; the adrenals govern immediate oxidation processes; the liver fabricates and stores glycogen, and is the great neutralizer of the acid products of energy transformation; and the muscles are the final converters of latent energy into motion and heat.[2]

This brief statement, far from adequate as it admittedly is, is no mere guess but is substantiated by some of the most striking experimental works of modern physiology.[3]

It is quite unnecessary for us here to go into any of the technical problems relative to energy production and transformation. What we are interested in is the relation of these matters to human dynamics. We hold to the principle of *psychological mechanism* which interprets the various complex mental processes and states by reference to neurone activity. Consciousness and intelligence, from this point of view, are qualities

[2] *Ibid.*, p. 158.

[3] *Ibid.*, Part III.

of that activity. This is opposed to the *voluntaristic* conception which assumes that consciousness and certain categories of intelligence are fundamental and independent data upon a plane distinct from the physical or chemical.

Those physical and mental states which drive men to action, if our postulate is justified, must depend upon bodily energy and specifically upon the production of kinetic energy. This does not mean that the amount of latent energy in the body is correlated with human "driving power." Nothing is more obvious than the fact that people who are physically vigorous often lack those very qualities which drive men to accomplishment. And history is full of examples proving that physically puny people are often paragons in their devotion to a purpose or a cause. These seeming contradictions are due to various and profound conditions which must baffle analysis in any particular case. We must see, however, that the transformation of latent into kinetic energy is not a general function but a specific one. That is to say, each organic or psychical process, each act of focused attention, calls for a specific process of transformation of energy. One's original nature may predispose him to more effective transformation in certain of these specific processes than in others. But much more important than this is the facilitation that grows up as habit during a lifetime. Through habit development a naturally energetic person may remain a lazy creature partly because certain potential capacities for energy transformation have not been trained into service. On the other

hand, a weak and fragile body may harbor great powers because of a habit development which conserves and mobilizes its energies.

If there were no other considerations it might be said that, so far as human dynamics is concerned, a body containing a surplus of latent energy is superior to one containing a deficiency, in any case where the training is identical. But this is far from the truth. In the quotation given above it was pointed out that certain organs possess highly important rôles in the transformation and control of energy, the chief of these being the brain, the thyroid gland, the adrenal glands, the liver and the muscles. Other glands and organs are no doubt closely involved. Now the mere possession of latent energy is no measure of the facility or vigor of these glands and organs in their performance of the functions mentioned. The sensitivity throughout may be great or small. The brain may be strong or weak in the part it plays. Not only differences in the strength and capacity of the various glands, but differences in the interrelations between them, offer the widest range of possibilities. Emotionality, which is one of the greatest factors in human dynamics, is thus never directly relative to the amount of energy, but rather to habit developments and sensitivity. Intelligence, too, a most important factor in our problem, depends fundamentally upon brain chemistry and structure. All these considerations must condition any explanation of human motives. In the last analysis each and every factor is concerned with the transformation of latent into kinetic energy. The situation is

somewhat like that of a factory which depends upon steam power. It may have a perfect power-producing equipment, but the efficiency depends upon the character and order of a multitude of mechanical contrivances and upon the manner in which they work together.

THE DRIVE OF HABIT

We may turn, then, to the mechanisms by means of which energy is differentiated and directed in the complex processes of behavior. Shall we find in the mechanisms themselves any explanation of human dynamics; or must we consider the mechanisms merely as instruments, and go behind them for the motives? [4] This problem has given rise to two opposing schools of psychology. Without becoming involved in the far-reaching speculations of the conflicting views, we shall here try to show that human motives, so far as they may be defined specifically, are in most part manifestations of habit development.

Let us first think of some relatively simple processes of behavior which are in the nature of habit linkages: for example, sharpening a pencil, lacing one's shoes, repeating a familiar multiplication table, or singing a well-known song. We know that these processes seem to carry themselves along. When they are started going they act as if they were run by a wound-up spring. This *set* of a habit process is not due to any

[4] Robert S. Woodworth, in his *Dynamic Psychology,* is a good exponent of the former doctrine in certain of its aspects; while William McDougall, in his *Social Psychology* and other works, is the best known exponent of the latter.

conscious volition or deliberate mind control, for we know from experience that such a process may carry itself along without any evidences of purposive attention. Even in the singing of a familiar song we may be thinking of something else. Indeed, our attention may even be attracted by something which calls for a different response, something more important than what we are doing, but we find it quite difficult to break off in the midst of the unfinished business. This persistency of a stimulated habit system is probably the simplest condition of a human motive. It is a condition which we may assume to be due to the fact that energy is being discharged along certain neurones. Whether this energy discharge is metabolic or electrical we do not know, but laboratory experiment has demonstrated that it is a physical fact.

In habits such as those just instanced, the absence or low level of volitional control does not mean that intellectual processes are quite out of the game. It is simply a case where the necessary processes in the brain have become so habituated as to minimize the function of consciousness. As a matter of fact, the mental processes that are involved are energized in the appropriate neurones as thoroughly as are the sensory and motor processes in their appropriate neurones. The directing function of the habit activity is still located in the cerebrum, and if that were cut off the procedure as a whole would go to pieces. The intensity of consciousness in a habit activity must depend upon the need or occasion that gives rise to it. If one pulls on a shoe, a simple perception sets off the habit responses

necessary to lacing it; but the mental segments of the responses hold a priority over the complex act, and we say that one has a *mental set* which binds him to the business in hand.

The mental set, which is a condition of energized neurones in the brain and includes experiences of feeling, is a very important factor in human dynamics. As a practical consideration it has for some time been recognized in studies of factory efficiency. It was thought, for example, that more and better work would be done by operatives if they were permitted at frequent intervals to change their task, the idea being that the change would relieve tedium and be stimulating. The discovery was made, however, that as a principle the plan was fallacious for the reason that frequent change of task meant frequent breaking of the mental set. To abandon one set for another, within limits, was distasteful to the worker and resulted in loss of time due to the necessary reorganization of energies.

Woodworth points out several conditions that commonly act as selective agencies in producing the set—motor as well as mental—of a system of responses.[5] A cat confined in a cage, for example, strives to escape. The stimulus of confinement, together with that of food just outside, is what arouses the cat's activities. There is not, strictly speaking, an impulse to escape ready formed in the cat, but rather it is in the nature of cats to feel such an impulse when a certain type of

[5] Woodworth, *op. cit.*, pp. 120-27. The quotations that follow are from this source.

situation sets off the escape reactions. "This tendency to escape is a mechanism aroused by the stimulus . . . ; once aroused and not immediately satisfied, it acts as a drive to the mechanisms that produce the various specific reactions of the cat to different parts of the cage." In the case of the untrained cat, the mechanism which, when aroused, produces the tendency to escape, is not habit but an unlearned equipment. In the case of a confined man, the mechanism would possibly be in part instinctive, especially if he were hungry, but it would be chiefly a product of his experience. With both cat and man, the check produced by the imprisonment would be the stimulus to a mechanism. The stimulated mechanism is the drive. It is the condition of the mental and motor set.

As Woodworth points out, a present interest is a drive, and it may take the form of a question. We may be surrounded by objects of a certain significance without experiencing any definite attitude toward them; but a directing question may arouse an interest that will start a meaningful and purposive inspection of the objects. "The question, then, is decidedly to be called a drive; it arouses certain activities which would not be aroused by the external objects alone."

What we call "intention" is a common type of mental set. We may possess the intellectual habits which insure proficiency in computation, for example; but when we see two horizontal rows of figures one beneath the other, our habits are useless without the intention which directs us whether to add, subtract, or multiply them. Now this intention is itself based upon a mech-

anism which is innervated by the present situation, and when so innervated it is a drive which selects and gives motive to the appropriate computing responses. A somewhat similar condition prevails in reading, where "the context already taken in by the reader is a selective agency, determining which of several familiar meanings a given word shall suggest." This is especially in evidence in reading a story or watching a play. "Comprehension of the general situation is a drive, producing greater interest and mental activity on the part of the observer than could possibly be aroused in him by isolated words or actions, and also selecting his associative reactions to them." Woodworth holds that the "perception of what the situation demands" is a "frame of mind" which acts as drive and selective agency in "motor behavior and the life of action generally." This he says is probably true not only in the narrower activities such as computing, but in the broader aspects of behavior as well.

INTEREST

The problem of drive in the broader conduct of life leads into the question of human interests. There has been much speculation about the basis of interest. The hedonists have held that it depends upon pleasure and pain: that we develop interests which are conditioned positively by the one state of experience and negatively by the other. Vitalists, like McDougall, hold that interest is a condition of instinctive striving. Intellectualists, following Herbart, believe that it depends upon the extent, variety,

and systematic organization of the cognitive systems of the mind. No one of these theories is wholly satisfactory, but we are here concerned more with the reality of interest than with the explanation of it. In any case, the following statement of McDougall is good:

> To have an interest in an object is, then, to be ready to pay attention to it. Interest is latent attention; and attention is interest in action. The essential condition of both interest in and attention to any object is that the mind shall be so organized, either natively or through experience, that it can think of the object, and that such thinking shall evoke some impulse or desire which maintains a train of activity in relation to the object.[6]

It is the last phrase of the quotation which is of great importance to human dynamics. Active interests are motives. They involve a conation or striving, an "impulse or desire" toward the object. When we are experiencing an interest in anything our attitude is always more than passive receptivity. We are drawn to acquire the object or analyze it or manipulate it or master it or go out and meet it. It intrigues us and we respond positively to it, are moved in some manner to embrace it. When an interest is commanding and sustained we have a motive which is one of the dynamic conditions of our life.

Our conception of interest compels us to look for its basis in an energized condition that is spread more or less among habit systems. We should presume that in any elaborate instance an interest involves intellectual,

[6] William McDougall, *Outline of Psychology*, p. 277.

affective, and motor components. Indeed, without some pronounced motor tendencies we cannot think of an interest as conative, as a "striving toward" anything. Limited strictly to the intellectual response there would be no interest, but only recognition. Limited strictly to the affective response there would be no interest, but only feeling. To get conation or striving, then, an interest must include activation of (1) intellectual and motor systems; or (2) affective and motor systems; or (3) intellectual, affective, and motor systems. Whether an interest is ever limited to the first or second of these possibilities is very doubtful and probably impossible. The nervous system is, after all, a unit, and the diffusion of impulses in any complex situation is very great. Distinctions of responses as intellectual, affective, and motor were not made by nature but by man.

As was pointed out in the chapter on Character, a complex system such as we have been describing may be called an *interest system.*[7] The interest is present when the system, or some essential part of it, is activated. The formation of interest systems is a normal development. They grow with one's education. They are the neurographical record of one's culture. A broad and organized mass of desirable interest systems is the foundation of any well-rounded personality.

Presuming the presence of intellectual and affective components in any elaborate interest; and presuming

[7] For an excellent technical discussion of interest systems, the reader is referred to J. C. M. Garnett's *Education and World Citizenship,* following the indexed references. See above, pp. 193-194.

further that these combine with motor tendencies in producing the conative impulse, we must recognize that the intellectual, affective, and conative aspects may interweave in varying patterns. The conation will be in differing amounts in differing situations; and sometimes the intellectual components will exceed the affective, while sometimes the affective will exceed the intellectual.

The driving power of an interest is well illustrated in a minor way by the chess player. He plays the game because he is interested in it. He is provided, to begin with, with an elaborate habit equipment which is intellectual. This is brought into activity as the game opens. The player becomes deeply engrossed. If he paused for introspection he would be conscious of a charging of emotional pressure, a suppressed excitement, which seems to be the substantial quality of the pleasure in the game. But he would also be conscious of a dominating purpose, a driving impulse so strong, it may be, that only by force could he be dragged from the game. Though the habit patterns will differ, the general conditions will be more or less analogous in the case of any other strong interest, whether it be architecture, babies, old lace, golf, socialism, or the culture of alfalfa.

In a small way the example of the chess player illustrates the interest activation of a Shakespeare or a Napoleon or a Darwin. It illustrates likewise the character of the habit associations that give motive to common life, in some of which the intellectual aspect is at a minimum. Even the trivial routine of the leisured

nonentity is in some degree a series of responses to interest systems, for they may group about such concerns of life as hairdressing, reduction of weight, movies, card clubs, and popular "psychology." Interest systems have their way with us so long as their course is smooth; but, as was explained in the chapter on Character, they frequently come into conflict with other systems. It is in such cases that the phenomenon called *will* is observed.

In any case where an interest system becomes a passion, we may look for results either good or bad. He is indeed unblest whose interests are shallow and weak, but he is either blest or curst whose interests are wine to his veins and fire to his soul. If we could analyze the motives of the greatest leaders and thinkers we should find, no doubt, that their interests were many and wide; but we should find, too, that they were all integrated relatively to a ruling passion, all concentrically embraced about a pivotal aim.

The interest system as drive does not have to be superseded even in the case of great genius. The genius may be regarded as one who possesses, primarily, an extraordinary neural facility. This predisposes him to a certain superlative habit development which eventuates in a commanding interest system.

> Genius [says Woodworth] is this—at least this: native capacity of a very high order for perceiving and handling a certain class of objects, the class differing with the particular bent of the individual's genius. The genius's spontaneous interest in this class of objects, his quick and penetrating apprehension of them, his masterful handling of them,

his absorption in them to the neglect often of the commoner interests of life, his remarkable persistence and industry in dealing with them, and his consequent productivity, are all the same trait under different names. The drive behind the industry of the genius is not the drive of hunger, or sex or rivalry—though any of these may contribute incentive—but is to be sought within the activity itself.[8]

We have seen that an interest system, as a mechanism, is capable of being stimulated into activity, and when so stimulated is a drive. To say that it is a drive is equivalent to saying that it is a stimulus to further activity. The question naturally arises: What originally stimulates the interest mechanism?

To answer this question it might seem that we should have to get down to some deep-rooted impulses to explain our psychological acts. Thurstone, among others, has recently argued that the search for such causes leads us to innate urges which are antecedent to any psychological stimuli. He says:

In the last analysis the datum for psychology is the dynamic living self and the energy-groups into which it may be divided. We may refer to this datum as the Will to Live, or we may call it the Life-impulse, or the Vitality of the organism, or we may discover it to be the energy released by metabolism. We may be able to subdivide our will to live into large energy-groups which manifest themselves in conduct more or less independently. These energy-groups would be our innate, dynamic, and more or less distinct sources of conduct, and we might come to call them drives, motives, instincts, determining tendencies, or any other word which represents

[8] Woodworth, *op. cit.*, pp. 132, 133.

that which we as individuals innately really are, that which characterizes us as persons with individually preferred forms of life.[9]

Stimuli, according to this writer, are subsequent to the true sources of conduct, and are merely conditions to which we respond *after the behavior is initiated.* He therefore suggests that we "dethrone the stimulus."

If we were to adopt this point of view we should have to look upon the interest system as something incidental to an innate energy drive. We see no need, however, to postulate these "more or less distinct" energy-groups into which the life impulse may be divided. The nearest we can come to such states, without a broad assumption of nonphysical energies, is in the case of those acute physiological states such as arise from hunger and sex excitations. Whenever we seek specific innate drives to conduct we are driven back to what can only be regarded, from the scientific point of view, as the miraculous. It is much easier, though no less wonderful, to explain interests in art, history, numismatics, statistics, gardening, or polar exploration as products of our experience than to regard them as specializations of a will to live, or, as McDougall would say, "differentiations of the *élan vital.*" It is certainly innate to be active, in virtue of our structure which is such as to produce kinetic energy when the stimulating conditions appear. Beyond this fact most of our behavior takes its form because, either immediately or remotely and indirectly, we find certain re-

[9] L. L. Thurstone, *The Nature of Intelligence,* p. 11.

actions satisfying and certain others dissatisfying. These in turn are conditioned by the minute differences of the nervous and organic structure, and by the training and accidents of life. In the course of this experience we develop interest systems.

It is to be remembered that all this is not to deny the influence of rivalry, fear, love, curiosity, play, acquisitiveness, mastery, approbation, or disapproval as driving forces in the life of men. These terms and many others, often disguised in figurative or poetical language, are made much of in the so-called "new psychology," being regarded as founts of action or "secret springs." They are, in fact, names that we give to many of our modes of reaction; but it must be contended that fundamentally they are phenomena growing out of experience rather than primary sources of experience. But they *come to be* sources of experience in the course of one's development. Acquisitiveness, for example, comes to be a powerful incentive because man has learned the joys of acquisition. In the case of the child we see how great an incentive love of approbation is, because the child has learned the pleasures of being praised.

All these incentives born of experience become very important drives in human behavior. The mistake is commonly made, however, of regarding them as the enduring motives in protracted and purposeful endeavor. It is as if the successful man of business were continually goaded by the love of acquiring profits, or as if the writer were constantly fired by the yearning for fame, or the expert workman were spurred only by

the promised reward, or the child clung to his lessons only because of the approval he might win. The truth is that seldom, if ever, is any productive or creative or worth-while task driven to fruition by such a single incentive. The incentive may start it going, and crop up time and again, but it is very doubtful if alone it would carry one very far. One forgets the incentive in the interest of the game. He becomes absorbed in the elaborate interest system that is in play. Otherwise, he lacks the motive and the drive for great or worth-while accomplishment. Incentives, then, such as those described, may stimulate an interest system into activity so that it acts as a drive, although in fact we must look upon such incentives as nothing more than very strong interests. Other conditions may be cited, however, as efficient causes of activity in an interest system. The simplest case, as has been pointed out, is a hunger or sex excitation or some other organic need. On the other hand, it may be a simple perception. An interest mechanism concerning postage stamps is readily awakened by the sight of a stamp or by any direct or vague reference to stamps or postage. An interest in politics is ever responsive to any of a thousand words or allusions heard or read. In fact, in the associations of the brain all routes lead to our ruling interests. If one is chiefly concerned with the selling of soap or the making of doormats, all topics of conversation will lead him to "shop talk." A person suffering from nostalgia, so that all he can think of is home, is not in the clutch of some innate home-driving impulse. He is dominated by an interest

system with strong affective attachments which is continually stimulated by perceptions of contrast between the present situation and that of the longed-for home.

Interest systems have a way, it is true, of rousing to activity without apparent cause. The man engrossed in business, for example, finds his mind forever reverting to its problems even as the thoughts of the lover continually turn to the adored one. Interest systems in these cases may be looked upon as mechanisms that are in a constant state of sensitive readiness. It is probably true that this condition renders the neurones involved liable to an infusion of energy at any time. We may well assume that the energy of any mental activity may drain into them upon arousal of the slightest association, if no check emerges, and excite their intellectual, affective, and conative responses.

PURPOSE AND DESIRE

The interest system may assume certain characteristics which give us *purpose*, or certain other characteristics which give us *desire;* but these can never be taken as mutually exclusive for they would overlap more or less in any case. We have purpose in any interest system where the conative aspect is strong and persistent, and where it is integrated with a clearly planned end or consequence. Purpose is then but a name for directed conation linked with an elaborate intellectual system, and all organized about an idea of something unrealized. There will be components of feeling, of course, but these will be relatively weak as

compared with the intellectual aspect. Desire may be contrasted with purpose. In desire the conative aspect is also strong, but it is linked with feelings which hold an ascendancy over the intellectual components. Purpose is commonly, then, a colder and more calculating experience than desire; and for that reason it gets something done. Its reason for being is to get something done. In desire, however, the object is attained when the feelings are appeased. The consummation may necessitate the attainment of a coveted end, or it may be realized solely in the imagination. In the case of purpose, something has to be created or constructively brought about. In the case of desire, satisfaction is its own reward. Of the great and compelling interest systems in human lives it can no doubt be said that they are loaded with both purpose *and* desire.

Certain of our desires are undoubtedly instinctive. They are states of feeling aroused by hunger, thirst, sexual excitement, being too hot, being too cold, and a few other primary stimulating conditions. They are feelings of want that can only be removed by direct gratification. In these primitive cases it is possibly an error to speak of desire as an aspect of an interest system. As was pointed out in the chapter on Instinct, man's behavior is reasonably interpreted as an elaborate habit development intricately built up upon the prepotent reflexes. In his world of manifold experience man has found certain states of affairs satisfying, and he has naturally built up modes of behavior favoring the realization of those satisfying states. He has also built up modes of behavior leading to the avoidance of

unsatisfying states. It is possible to catalogue a large number of conditions that men have commonly found satisfying and toward the realization of which they have built up habits of behavior. These habits have led far from the primary instincts and they have carried desire along with them. It is instinctive to desire just as it is instinctive to behave; but the specific desire like the specific act of behavior is a *learned* reaction except in the instinctive situation, and the strictly instinctive situations are few. In the dynamics of life most of our desires have grown out of normal environment and social life. The things and conditions desired are represented in our minds by systems of images and thoughts which are the intellectual aspects of interest systems. Without these we might feel vague desires but we should not know what we desired.

Desires, then, in the sense of specific yearnings, do not come first in human experience. This is even true of love. There could be no love-yearning without knowledge of the opposite sex, but only an occasional physical restlessness due to a physical cause. It is the presence of the opposite sex in the environment that has occasioned the development of the interest system and which gives a specific character to the desire.

Of possible human purposes and desires there is no end, but it is possible to make a partial list of the more common ones. Such a partial list is here appended.[10]

Aggrandizement	Children	Comfort
Amusement	Cleanliness	Conservation
Beauty, appearance	Clothes	Dependability

[10] From H. F. Adams, *The Ways of the Mind*, pp. 220, 221.

Distinction
Drink
Durability
Ease
Economy
Efficiency
Entertainment
Excitement
Exclusiveness
Family
Favorable attention
Food
Friendship
Gain in utility
Health
Home
Hospitality
Knowledge
Love
Money
Ornaments
Permanence
Physical strength
Play
Pleasure
Popularity
Position
Possessions
Presence of other people
Prestige
Purity
Quality
Safety
Security
Service
Sex
Style
Success
Travel

DYNAMIC REINFORCEMENT THROUGH FEELING

We spoke of desire as the condition of an interest system where the aspect of feeling, in the nature of a yearning, is uppermost. It was left to the present section to emphasize feeling, especially in its emotional qualities, as a dynamic of the first importance in all human behavior. Its significance has already been stressed in the chapter on Feeling, but let us for a moment consider the rôle of feeling in all that we do and say and think.

It is perhaps the privilege of a god to be exclusively intellectual. With mere man the affections are interwoven with his whole experience, and this is a blessing because only thus can we be human; but it is a misfortune because it prevents our acting like gods. Though a matter of speculation, it is probably safe to say that every perception, thought, and image of our mental experience possesses some background or correlative of feeling. The same is probably true of each motor act. That this feeling accompaniment is present in certain

instances, we all know. Let one think of the most harrowing experience of his life and he will be quite aware of the affective responses that are habitually associated with it. Let him engage in a wrestling bout and here too he will discover unmistakable affective conditions. But let him descend from the thought of a harrowing experience to the simplest thought process, say the perception of an apple; or let him descend in motor behavior from the wrestling bout to a most simple learned movement, and throughout either series introspection will show a decreasing accompaniment of feeling. There may seem to be gaps, and the feeling may taper off more rapidly than the parallel thoughts or acts, but enough will be disclosed to impress one with the pervasive nature of emotion and feeling.

We are but calling attention to one aspect of the complexity-in-unity of human behavior. It is the true nature of all behavior to consist of an interwoven fabric of intellectual, affective, and motor responses. It is but a device of psychologists to abstract any one of these. A study of the real psychological state must always take the three into account. The relative part played by each must depend upon the nature and past experience of the individual and upon the momentary situation, and will never be quite the same in any two individuals, nor upon any two occasions.

The affective responses felt by a person at any given time must usually be due to habit associations that have been set up along neurones connected with the organic and glandular sources of the feelings. When not habit associations they must then be instinctive. In either

case we know this: that in the case of certain profound affective responses there is a liberation of energizing substances into the system, thus preparing the individual for combat, escape, or endurance. We cannot argue from this that every emotion is indicative of an energizing discharge, for some emotions, like sorrow, are prostrating. Many of our lesser feelings, also, like shame, seem to rob the energies. We can safely assert, however, that there is a long range of feelings, beginning with the primitive emotions and extending through many degrees of modification and intensity, which energize our behavior. Striving to possess an object, striving in advocacy of a cause, striving to accomplish an aim are all strong when the feelings involved habitually sustain them.

The emotional state in which there is a discharge of energizing substances into the system is primarily the reaction to an emergency. When one is deliberately pursuing a thoughtful line of endeavor we have a different state of affairs. There is at such times no call for emotional excitement, and indeed the efficiency is interfered with at any moment when great excitement arises. And yet it is true that one will not persistently strive in a thoughtful line of endeavor unless he is sustained by a strong affective attitude. It is possible, then, that the affective attitude is sustaining in a manner that does not depend primarily upon an exciting discharge of substances into the system. The probability is, however, that some discharge does take place when any interest system is aroused; and the probability becomes almost a certainty in those cases

where the endeavor meets an obstacle or is seriously jeopardized, for in such cases we have the condition of an emergency.

The dynamic reinforcement of behavior through feeling is at any rate one of the great facts of our life. Without it there would be no enthusiasms, ambitions, conquests, conversions, evangelisms, discoveries, or triumphs. The philosopher, the true teacher, the great soldier, the orator are alike inspired and carried on because they have the capacity for energizing and sustained feeling. And in the daily lives of the multitude the same force is at work. It gives zest to our hobbies and energy to our interests. It not only works for good but for bad also, for the systems of feelings involved in conduct are in many cases pitifully selfish, sensuous, or unworthy. The principle is as true in the case of the miser or the *roué* as it is in the case of the philanthropist or the minister.

The dynamic drive of feeling often leads to deeds condemned by one's own reason. Thus feeling and reason are frequently in a state of contention. Let the dictates of reason be sustained by worthy feelings, and let them come in conflict with interests sustained by unworthy feelings, and we then have the ancient duality which has given rise to devil myths and dogmas and demonologies in which we see evil and good contending within us. A man lusts and is satiated; his appetite for some base satisfaction is appeased; and then what he calls conscience raises its pure head safe from the gusts of hungry desire. Then it is that he takes his vows and chastises himself—to fall again perhaps. But

not necessarily to fall, for perchance the seeming miracle of redemption is wrought—some mighty influence grasps and reorganizes the affective dispositions. Old energies are mobilized and redirected. Profound readjustments of the affective habits are made, it would almost seem, in a moment. It is not, however, that new associations in the character are suddenly formed, but rather that previously weak, intermittent, or tentative ones are strengthened and reintegrated to a degree that gives their whole system a mastery over baser drives.

To explain that these regenerations or conversions are phenomena of neural invigoration and reintegration in the affective systems is, perhaps, to leave much unsaid. There can be little doubt, however, of their being just about that. The stimulating situation that prompts such a reconstruction must necessarily be intense. This is more or less consciously recognized by evangelists in their technique. The most effective evangelistic procedure is a triumph of stage management. With music, hymn, and exhortation the emotions are profoundly stirred. The sin and depravity of men are laid bare. Penitents are called to come and be forgiven. Trembling sinners approach the platform, and an audible praying of the helpers who meet them is heard. Low in the background is the chanting of the choir. "Hallelujah! Hallelujah!" is the cry as new penitents approach. Through the stirring confusion rises the voice of the evangelist calling for others to be saved. More timid ones go forward and join the kneeling groups. Sobs

break forth, and a subdued wailing mingles with the sounds. Now the evangelist rises to the climax of his appeal. The strains of "Where Is My Wandering Boy?" peal forth from the choir. Now it is a mighty drama in the grip of which few are unmoved and numbers are overwhelmed. Through such experiences many who sin are made good, and some who sin not are made victims of neurosis.

The evangelistic drama is a mighty ensemble of emotion-engendering forces with which we are all more or less familiar. We all know those throbbing moments of upwelling emotion created by the influence of some melody, song, poem, or eloquent appeal. At such times we are frequently lifted to ecstatic states in which our noblest desires are liberated and sublime resolutions crowd upon us. Since primitive times men have known the force of these devices, though they have not known the mechanics of them. In mysteries and initiations, in the rituals of churches and lodges, they have taken form and been preserved because of their power to stir the soul and enrapture the mind. Let them be employed in the name of awesome powers, and the tumult that they engender is held to be a visitation of the spirit. Let them be mobilized and invoked in support of almost any policy, belief, or superstition toward which one is already inclined, and they may suck into their flood all his supporting systems of thought. The most extraordinary application of the principle ever made was in the use of emotion-stirring propaganda during the World War.

Men who stand forth as champions fighting for weak

or unpopular causes are like lovers. They are in love with their ideas. Just as a man may be swept into a tumult of feeling, thrilled with love and desire, stimulated to supreme efforts of mind, and lifted to sublime hopes by the influence of some woman, so too may all his capacities for thinking and action be galvanized by some emotion-stirring idea. The remarkable power of the late William J. Bryan lay in the fact that he was superlatively a man of this type.

Among the majority of men the interests are sustained by feeling in undramatic ways. It is none the less true that back of all our embraced doctrines, beliefs, loyalties, party affiliations, and the like, strong affective dispositions are to be found. These dispositions may have followed the reason as effect from cause; but it is probably true that in most cases the feelings preceded the conviction. Feelings of loyalty for the doctrines in which we are reared come first in time. Feelings aroused in the defense of our income or possessions naturally precede our convictions and lead us to espouse the favorable political cause or social policy. Feelings of loyalty for our family or town or class take a natural priority.

It is the gift of the balanced and scientifically trained man that he shall maintain a poise between the drive of feeling and the dictates of reason. He has learned that habit of mind which holds a supremacy over the nonintellectual impulses. He is the advocate of reason and the practitioner of the scientific method. Instead of intelligence being a servant laboring for the support of his affective attitudes, it is itself the formu-

lator of his affective attitudes. Thus, if he is so constituted as to be a man of power, his systems of feeling lend their energies to his activity. Such men are seldom spellbinders or spectacular performers, but they may be earnest and deeply stirred advocates. The scholar at his best, the devoted scientist, historian, or philosopher, is of this type. It is the nature also of the truly great statesman, of whom examples are few.

Notwithstanding the undoubted dynamic that lies in the affective attitudes, one may still point to many apparent examples of passionless devotion. Devotees of the laboratory, writers of heavy volumes, college researchers, bibliophiles, may be pointed to as dogged workers and cold-blooded believers who are unstirred by the sap of feeling. And it is true, no doubt, that with many of these the purely intellectual exercise is the chief drive. But we must not be deceived by such pale champions, for in more cases than not they are reservoirs of unsuspected emotional force. Neither lack of physical vigor in a man nor the peculiar nature of his interests nor the absence of the spectacular in his activities can be taken as an indication that he is passionless. The feelings depend upon deep and subtle reactions, and whether they be hidden or displayed is a matter that rests in the nature and habits of the individual.

CHAPTER XII

MEASUREMENTS OF PERSONALITY

It is conceivable that science may some day have evolved a seris of tests so precise and various that all one's essential characteristics may be reduced to measurement and numerical statement. In that day we may be able to step into a psychologist's laboratory, as we step into a photographer's, and have a psychograph made and stamped upon the back of a postcard while we wait. This would be convenient for mailing to a prospective employer or to one's eugenic sweetheart. It would tell at a glance what our mental caliber is; what we are emotionally; the nature of our impulses, interests, aptitudes, nervous reactions, temperament, and what not. By means of infallible tests we may some day measure a man's truthfulness, patriotism, morality, or his love for his wife!

SCOPE AND NATURE OF THE MOVEMENT

The number and variety of tests that are being used and experimented with are indeed sufficient to make one wonder if the result just suggested is but a chimerical idea. This great activity of psychological experimenters is going to lead somewhere, though doubtless far short of the dreams of some. But it is probably true that another generation will see us in possession

of devices that will give much information concerning many of the factors that comprise the human make-up. The most significant tests developed thus far are, of course, those for measuring the native factor (or one of the native factors) in intelligence; but literally hundreds of tests of specific mental abilities, skills, and talents are on the market and are being used. Scientific tests of specific kinds of performance, comprehension, reasoning ability, and judgment are a commonplace in the up-to-date classroom. Every college laboratory in psychology is equipped with instruments and devices for measuring the multiform reactions of the nervous mechanism. Specialists not only in the colleges, but in industrial and mercantile enterprises and in personnel bureaus, are using numerous technical methods for determining with more or less accuracy the fitness and aptitude of people for vocational tasks of certain kinds.

A movement of such scope must have a cause behind it. In this case the chief cause is the discovery of the human factor in the world's economy. Since ancient times the human factor has been lost in the mass, due to habits of thinking which have grown out of the use of armies, the practice of slavery and latterly the factory system. Reaching a climax in mass industry and mass education, we have begun to realize that something is wrong with the mass idea. The error is found to lie in the presumption that all men except the captains and the kings are equal. This presumption led our school people to prescribe the same rigidly timed and constructed course of study for every child; it

led our industrialists to handle the working class as if they were an undifferentiated species. If Johnnie were dull or brilliant, mechanically inclined or artistic, the school could make no change in its mass pattern to suit him. If anything changed it would have to be Johnnie, and when he got out of school, or the school got him out, and he needed a job, would it be shovel, hammer, brush, or trowel? He could only take his chance with the mass and win or lose in the hurly-burly.

Education now recognizes that every individual is in many essential ways different from every other. This is true of his mental configurations, his emotional tendencies, his desires and impulses, his aptitudes. It recognizes that the schools must be so plastic in their administration that all types and varieties may be taken care of in a way that will make each child the best of which he is capable; that it is crude and wasteful to try to do more or to be satisfied with less.

Industry likewise recognizes that every worker is an individual—that is, every progressive and intelligent leader of industry does. He knows that workers cannot be handled as a homogeneous mass with efficiency either for the worker or for the industry. Men must be adjusted to places where they belong and where they are most contented, and always with the way open to progress step by step as they improve. Their talents, their interests, their brains, their strength, their aptitudes must be taken account of, and these all differ among individuals.

These great problems of education and industry in the world's economy are problems of efficiency, but not

efficiency in a narrow, monetary meaning of the word. It is true that wholesale adjustments to meet the conditions of individual differences must result in tremendous financial savings; but the advantages that must accrue to human morale in general are beyond computation. It is to meet the technical demands of this great adjustment that the measurement movement has arisen.

SUMMARY OF TEST TYPES

Even a cursory survey of the field of these measurements is impossible in less than a volume. We can attempt to point out no more than the salient problems and characteristics. The various types of measurements are indicated somewhat roughly in the following outline:

Tests of Mental Capacity.—These include the various so-called intelligence tests, or tests of mental endowment. They are not intended to measure special capacities, information, or acquired abilities, but seek to determine the level of general mentality as fixed by heredity.

Tests of Competence in School Subjects.—These are the aristocratic descendants of the old-fashioned school examination. They include tests of skill, accuracy, knowledge, and ability to think in the regular school subjects. They differ radically from the old teacher-made tests in that they are uniform and scientific, and are entirely independent of the teacher's personal judgment or caprice in their scoring. A child's performance in any one of them can be compared directly

with that of any other child in the country, just as a linear measurement in feet and inches made in one place may be compared with that made in another.

Tests of Special Talents.—The field here suggested is an important one, namely, the determination of special artistic and other talent in the individual. Not very much has actually been accomplished along this line, although the Seashore test of musical talent indicates a successful beginning. This consists of devices for measuring one's native aptitude in certain elements essential to success in music, such as sense of pitch, sense of time, sense of intensity, sense of consonance, and tonal memory. The test is widely used, and is reliable within its limits, and will doubtless be extended and improved. The principle which it employs, which consists of an analysis of the talent into its component functions, and methods for measuring the individual's capacities in the same, is being employed in efforts to measure capacities in art and other talents.

Tests of Vocational and Mechanical Aptitudes.—Here the principle mentioned in the paragraph above is being used. Certain occupations have been analyzed into their essential movements and processes, and tests have been devised for measuring one's native ability in them. Other methods are being experimented with, however. For example, studies have been made to discover any constant correlation between some simple performance like rate of tapping, card sorting, or rote memory, and future efficiency in a given occupation such as typing. If one who performed excellently in the simple test always turned out to be a good typist,

then the test might be given in the beginning to determine whether one possessed the requisite capacity for that occupation. Only meager success has been attained in such experimenting. There is more promise, however, in certain tests of mechanical aptitude in which various dissembled mechanical instruments, such as locks, latches, mouse traps, bicycle bells, and the like, are presented to the subject as problems. This is the method of the Stenquist test. If the subject displays aptitude in putting the articles together, the inference is that he possesses a natural all-around mechanical aptitude. Sometimes, in these tests, picture problems are used instead of actual objects.

Tests of Trained Mechanical Skills.—These are tests for determining one's ability in performing a given task after one has had training or experience in it. The simplest method, of course, is to take a man to the machine or job and watch him perform a part of the work. This is not always feasible in large enterprises, however. The employers want some briefer and more impersonal test, by which large numbers of applicants may be handled, and information gleaned which will permit men to be graded into such groups as apprentice, journeyman, and master workman. In the United States Army, during the World War, these problems were worked out in the adjustment of personnel in the mechanical pursuits. Applicants for truck-driving, for example, were given a trial over a course staked out in a strictly standardized fashion, and were graded by a prescribed formula. Applicants for other positions, such as that of electrical worker, were given, as

part of their test, a series of prescribed problems upon a printed form, and were graded in a uniform manner. Tests similar to these have been adopted in various industrial establishments.[1]

Tests of General Qualities of Character and Temperament.—Much experimenting has been done to devise means for measuring such qualities as trustworthiness, honesty, citizenship, and the like. As desirable as such tests would be, if valid ones were invented, it must be admitted that the present situation holds out no great promise of success. Nevertheless, some investigators display considerable enthusiasm along these lines. In these as in all tests, some performance must be elicited from the subject; he must be induced to answer problems or questions, to perform some artificially conditioned act, or to respond to some trick situation. In any case it is doubtful if the performance can be taken as a true measure of a general moral quality as it would act under life conditions. In addition to such tests, various experimental attempts are being made to measure or identify emotional dispositions and neurotic tendencies. There is also the significant Downey test for measuring certain aspects of what its author calls will-temperament.

Experimental Physical and Psychological Tests.—These include numerous tests and measurements usually confined to the psychological laboratory. In large part they involve the use of delicate apparatus, and the results often depend upon more or less intri-

[1] See Charles H. Griffitts, *Fundamentals of Vocational Psychology*, Chap. ix.

cate interpretation. Whipple divides these tests into the following groups: (1) anthropometric tests for such traits as height, weight, and diameter and girth of skull; (2) tests of physical and motor capacities such as strength, endurance, rate and accuracy of movement, and steadiness; (3) tests of sensory capacities such as visual and auditory acuity, sensitivity, and discrimination of brightness, pitch, weight, and pressure; (4) tests of attention and perception as in range of visual attention and visual apprehension in various situations; (5) tests of description and report; (6) tests of association, learning, and memory; (7) tests of suggestibility; (8) tests of imagination and invention; and (9) tests of intellectual equipment.[2]

Several of the tests referred to in the preceding summaries will be mentioned later in the chapter.

Many tests may be constructed either for self-testing or for administration by another person. As a matter of fact, however, there are but a few tests designed for measuring one's self. One or two intelligence tests are of this kind, and there are several self-analysis scales useful only in a suggestive way. To act at one and the same time as tester and tested involves difficulties arising from the fact that one cannot remain in front of the scenes while testing himself. To endeavor to be both actor and critical spectator creates a situation that is not scientifically desirable.

Tests may also be of the *group* type or of the *individual* type. The former are designed for administration

[2] See G. M. Whipple, *Manual of Mental and Physical Tests,* Part I, "Simpler Processes"; Part II, "Complex Processes."

to groups of people at one time, while the individual tests are intended to be given to people singly. The best known of the individual type is the Binet-Simon intelligence test, used in various revisions in this country; while of the group type, the one most extensively used has been the army alpha test of intelligence, given to nearly two million soldiers during the World War. The latter test was often given to two hundred men in a group. Individual tests are in practically all cases the more reliable; and in measuring talents and skills, as well as in special psychological measurements, the nature of the problem generally precludes the use of group tests. In the handling of large numbers, group tests become a necessity because of the time element.

SUBJECTIVE AND OBJECTIVE MEASUREMENT

The words *subjective* and *objective* are commonly used in connection with measurements of personality. In one sense a subjective test is a measurement of a quality that is usually not expressed in visible physical action, as, for example, judgment, reasoning, appreciation, moral attitude, and the like; whereas, an objective test is one that measures some directly observable performance, such as handwriting, speed in typing, quality of wood carving, or any skill. As a matter of fact, however, it is misleading to speak of these tests as subjective or objective, for the reason that a line cannot be drawn between the two types of activity. Whether we are measuring a mechanical skill or a mental process, we can only measure

it by some kind of performance. Even in the case of such a quality as appreciation of a picture, we cannot isolate and measure the appreciation itself, but can only ask the person to do or say things about the picture or about his feelings, and then attempt to evaluate his responses. Likewise in the case of mechanical skills, it is a mistake to assume that they are entirely objective. Subjective states are involved in any performance. This is evident enough in drawing or painting, in playing upon a musical instrument, in dancing or in skating.

In a sense other than that just described, the terms objective and subjective may be applied to human measurements in a legitimate and important way. In this case the distinction applies to the attitude of the tester rather than to the nature of the matter tested. In measuring the trait of an individual, one may attempt a score or rating after deliberation and judgment based upon personal standards; or he may simply apply external standards, as when one uses a foot ruler or an apothecary's scales. In the former case his measurement is subjective; in the latter case objective. It can readily be seen that the objective standards, if valid, are the more reliable. Measurements of distance, weight, or force, if dependent upon subjective scales, that is to say, upon judgment, would never convey very dependable meanings.

Many experiments have been performed to determine the reliability of tests dependent upon personal judgments. A good example can be given from education, where the judgment had to do with the evaluation of

an examination paper written in geometry by a high-school student.[3] A facsimile of the paper was sent to a number of high-school teachers of mathematics with the request that they mark the paper upon a percentage basis. One hundred and fourteen replies were received. The marks given ranged from 28 to 92, the majority lying between 60 and 80. One would hardly expect so startling a disagreement in a subject so definite as geometry, but the fact is that each judge set up his own standards. Some were influenced by accuracy alone, others by such considerations as neatness, organization, perspicuity, spelling, and possibly by factors which they did not try to define.

For an example of strictly objective measurement, let us turn again to education. There are tests to measure performance in the addition of columns of figures. A test of this sort contains several columns of digits, each column of the same length and difficulty. In taking this test, pupils are to be seated comfortably at classroom desks in a room of normal temperature, under no unusual or disturbing conditions of any sort. All are provided with printed copies of the examples, and the pupils are to write their answers at the bottoms of the columns. The group have been given standard instructions as to what they are to do, and each is provided with a sharpened pencil. The tester holds an accurate timepiece, and at the word "Go" all begin to add. At the expiration of a specified time the word "Stop" is given, and all cease at the instant. By the

[3] From Daniel Starch, *Educational Psychology* (1st ed.), pp. 433-35; after Starch and Elliott.

use of a standard key the tester then marks as right or wrong the examples done by each pupil. The final score for each individual is the number of examples attempted, to indicate his speed in addition; and the number right, to indicate his accuracy. A test of this sort is entirely independent of the teacher's judgment, and the conditions under which it is given are practically the same for each individual, whether he be in Florida or New York. The whole procedure is mechanical, and scores are always comparable one with another.

The intelligence tests are constructed upon the same principle. These always consist of various problems, puzzles, questions, and intellectual tasks. The answers to these are scored by a standard key. The tests, to be authentic, can be taken only under certain prescribed environmental conditions. The score is computed by a fixed mathematical formula. Every precaution is thus taken to eliminate the personal judgment of the tester, and to control all factors except the one to be measured.

Tests of this objective type are usually "standardized." That is to say, average scores have been derived for different classes of individuals. In the case of an addition test, the average rate and the average accuracy for each school grade, and in some cases for certain chronological ages, have been elaborately determined. When the intelligence tests were given in the United States Army, the vast amount of data permitted the investigators to secure an average for the entire draft, an average for each of several races, an average

for several representative occupations, and for the various grades of officers and men.

In any normally distributed group, the average is more than a mere intermediate mark. It is the point about which the greater number of individuals cluster. If we say, then, with regard to any trait in a normally distributed group, that an individual stands at or near the average, it means that there are more people like him than unlike him so far as that trait is concerned. This justifies the fixing of the average as a standard for any homogeneous group, and affords a scientific point of departure upon any measuring scale, above and below which numerical values may be laid off. A superior individual in any trait is one who measures above the average and an inferior individual is one who measures below it.[4]

It will be helpful, at this point, to explain with further detail the objective method and the principle of averages as applied to the special field of intelligence testing. If we omit certain technical considerations, we may say that an individual's score on an intelligence test is simply determined by a numerical computation of the correct responses. This is crudely analogous to using a measuring rod. Instead of counting inches we count responses. But a score thus derived would be meaningless if we did not have some way of fixing

[4] The significance of the average or middle group in the distribution of scores in the scientific measurement of a trait can be definitely understood only with a knowledge of the properties of the "surface of normal distribution." The author does not deem it advisable to go into the mathematics of this, although he recommends it as a study to any one interested in human or social measurements. Reference should be made to any good work on statistics.

its value. The test has to be standardized, and this is accomplished by giving it to large numbers of individuals at the various chronological ages (in practice not beyond approximately the age of sixteen).[5] Averages are thus derived for each of the ages. To say, then, that a child has a *mental age* of six simply means that his score is equal to the average for six-year-olds.

Let us say that a child with a mental age of six is chronologically eight. This child, to be mentally normal, should have a score equal to the average for eight-year-olds. We may, then, express this child's deficiency by a fraction, placing his actual score over the average score for eight-year-olds. This would give us the child's *intelligence quotient*, or I. Q. The procedure is simplified, with, of course, the same result, by placing his mental age over his chronological age. Reducing the fraction, we get the customary decimal expression of the I. Q. In the case of the child mentioned, it is .75. If the child's mental age had been twelve, his I. Q. would be 1.50. In American practice the decimal point is dropped.

If intelligence tests are a consistent measure of a universal trait, we should expect them to give a final evidence of the principle of averages when any large group is measured. And we do seem to find just that evidence. Generalizing from a mass of accumulated data, Gates gives the following table as indicating the

[5] Terman's limit is sixteen. Others place it below or above. The limit is set because somewhere around sixteen the natural, organic growth of the brain—that is, the maturation of the cortical processes—attains completion.

probable distribution of I. Q.'s among any large and unselected group:

Scores	*Per Cent*
Below 70	1
70- 79	5
80- 89	14
90- 99	30
100-109	30
110-119	14
120-129	5
Over 130	1

Here we have a beautiful illustration of the principle of normal distribution, for 60 per cent cluster about the midpoint, while the frequencies fall away symmetrically in either direction.

ANALYSIS OF TESTS

Objective measurements are conceivably possible for any quality that manifests itself in human behavior. Strictly speaking, such tests are measurements of performance rather than of the trait itself, unless we say that the performance *is* the trait. The addition test measures what the individual does, not what is going on in his mind. And in the case of the intelligence test, we can only evaluate the performance—that is, the answers and solutions to the problems and tasks—and by inference judge the actual mental capacities. In many cases, as for example the measurement of skills and practical abilities, it is the performance we are most interested in. We want to know what the individual can do. The possibility of measuring all qual-

ities by objective procedure, however, is far from being realized because so many of them elude the testmaker's technique. Leadership, for example, is something that we should like to measure. But it is not a thing that can be summoned just when the stage is set, nor have we been able to discover any units of measurement, such as number of answers right or wrong. This is a condition that maintains with regard to a host of very important human qualities: loyalty, honesty, courage, tact, decision, persistency. And any one of these, in an individual, would differ from situation to situation.

In the case of such qualities we have to fall back upon subjective procedure. Thus a prospective employer may ask a "reference" to give his opinion of an applicant with regard to certain specified traits. The one so solicited will ponder the matter and finally render a judgment that is entirely personal, and influenced altogether by accidental and subjective considerations. To test the validity of such judgments, H. L. Hollingworth had twenty-five women in an experimental group, mutually well-acquainted, rate one another in nine qualities.[6] If *A* judged *D* to be highest of her twenty-four associates in a given quality, she was to rate her 1; if she judged her to be sixth of the group in another quality, she was to rate her 6 in that quality, and so on.

"If we bear in mind," Hollingworth explains, "that purely chance arrangements of such a series, from time to time, would give each individual the same average position in the series, and that the average deviation of all the separate positions from this average would

[6] H. L. Hollingworth, *Judging Human Character*, pp. 48 *ff.*

be on the average a little over six steps," we can readily grasp the significance of the results.[7] These are indicated in Hollingworth's table, which follows.

Quality	*Average Deviation of Judgments of 24 Acquaintances*
Vulgarity	3.5
Intelligence	3.7
Beauty	3.8
Conceit	4.1
Neatness	4.5
Humor	4.5
Sociability	4.7
Snobbishness	4.8
Refinement	5.9
Average	4.4

If the experiment can be taken as typical, it is obvious that people vary considerably among one another in their estimates of an acquaintance. In the judgments of some qualities they disagree almost as much as possible. Further experiments along the same line show that the disagreement among judges is consistently greater for some qualities than for others. This phenomenon has led Hollingworth to determine what he calls the "hierarchy of consistency." [8] In this he presents twenty-three human qualities appearing "in the vocabulary of ordinary speech and letters of recommendation," and including a "fairly rounded analysis of character." The higher the quality stands in the hierarchy, the greater the probable validity of the single judgment. The order is shown in the following table:

[7] The table as here presented is arranged in an order somewhat different from that given by Hollingworth, with the object of placing the judgments in the order of reliability.

[8] Hollingworth, *op. cit.*, pp. 79 *ff.*

HIERARCHY OF CONSISTENCY IN JUDGMENT OF HUMAN QUALITIES

(After Hollingworth)

Efficiency Originality Perseverance Quickness Judgment Clearness Energy Will	Class A Close agreement
Mental balance Breadth Leadership Intensity Reasonableness Independence Refinement Physical health Emotions	Class B Fair agreement
Courage Usefulness Integrity Coöperativeness Cheerfulness Kindliness	Class C Poor agreement

Hollingworth points out that the *A* qualities are the ones most open to appraisal, in that they are "likely to result in objective products, such as inventions, factories, books, bank accounts, salaries, positions, records, etc."; while the *C* qualities are the ones least likely to show definite and concrete manifestations, but are personal, social, and moral, and represent reactions to the presence and character of other persons. The *B* qualities stand midway between these two groups, or partake of the characteristics of both.

The investigations also show that the circumstances of one's acquaintance with the person being judged have much to do with the judgment. The judgments of an instructor, for example, by members of his class, are considerably different from the judgments of that instructor by his associates, for the reason that the class know him only formally and impersonally, while his associates know him personally and socially, and are acquainted with the value of his works. If a man were judged by his fellow workers in a factory and also by his fellow church members, there is little doubt that radical differences would be found. Personality differs more or less with the occasion.

There are three common sources of error in the judgments of people. One of these, the *central tendency of judgment*, is prevalent even in estimating simple perceptual phenomena such as time, weight, force, length, area, etc. In making any judgment the unwary mind is influenced by a notion of mode or type, and tends to draw toward this the quality being judged. Thus a quality that is far below the mode will be generally overestimated, and one that is above the mode correspondingly underestimated. In studying estimates of the general intelligence of children, Terman found a strong tendency for parents and teachers to overestimate the retarded and to underestimate the superior individuals.

The second source of error is the influence that judgments already made have upon later judgments. An individual may have shown one or two qualities that have given us either a very unfavorable or a very favor-

able opinion of him. If we are asked to rate him in a list of specified qualities, the chances are that the favorable or unfavorable impression produced by the trait or traits previously observed will in large measure influence our estimate of the others. It often happens that a person has very favorably impressed us with his good fellowship and affable manners, or with his poise and reserve, and there is no doubt that the original impression will strongly tend to enhance the judgments of unrelated qualities.

The third source of error is the confusion and looseness in the interpretation of trait names. If a judge is asked to rate a candidate, for example, in integrity, leadership, initiative, common sense, energy, and general ability, it is usually left to the judge to define these terms for himself. It cannot be expected that each judge will define each trait name in exactly the same way. If he is very careful, however, he will so define them that no two of them will overlap. But it often happens that a judge will fail to analyze out each trait with sufficient care to prevent this overlapping. Thus general ability, reliability, and common sense will probably be judged on nearly identical data; and the same may be said of energy, initiative, and leadership. To overcome this last source of error, recommendation forms are sometimes provided on which the trait names are specifically defined and the judge is asked to give concrete instances.

These three sources of error are, of course, in addition to the common imponderable factors of unreliability that must always tend to vitiate, in greater or

less degree, the judgments of any individual. Among such factors must be included false, prejudiced, and varying standards of judges. There is also the fact that "the outward show makes not the inward man." What seems to be originality is often but clever plagiarism; what appears to be bombast is frequently the cover for a sense of inferiority; and what gives the impression of humility is sometimes a subtle disguise for abounding pride. And finally it must be remembered that what we call traits cannot, in the very nature of personality, stand as constant and unvarying qualities. They are but convenient centers of reference in a total personality which can never be exactly the same in any two situations, for, as we have so frequently pointed out, the personality is at any moment conditioned by both the subjective and objective factors of a total situation. The behavior must be affected by the environing conditions, and these must be affected by the behavior, giving us a progressive and circular interrelating which defies exact prognosis. No mean task is posed for measurement experts!

An interesting attempt to standardize and make objective a rating of personality was that of the committee on classification of personnel of the United States Army during the World War.[9] This was a "man-to-man" comparison for the rating of officers. Each instructor in the officers' training camps was required to construct a five-point scale, one measur-

[9] For a full description and discussion of this rating device, see the second volume of *The Personnel System of the United States Army*, published by the Government Printing Office.

ing highest, high, middle, low, and lowest, for grading officers in the following characteristics: physical qualities, intelligence, military leadership, character, general value to the service. For each characteristic, the instructor was to select the officer of his acquaintance who, in his judgment, stood highest in that characteristic, and was to place the name of that officer at the top of his scale; he was then to select the officer of his acquaintance who, in his judgment, stood lowest in the quality in question, and place his name at the bottom of the scale; then, in like manner, he was to select a name for the middle of his scale; and likewise one for the point intermediate between top and middle, and between middle and bottom. Thus he would have five points of comparison on his scale, and by repeating the procedure for the other four qualities he would have constructed five complete scales. Provided with these, it was assumed that the instructor would be able to use them as objective measuring devices. In rating any candidate in any of the qualities, the judge had only to compare him with the men on the scale and place him in his appropriate position. Human subjects were to be measured against a human measuring rod.

This device met with no great success because it still failed to eliminate many of the subjective elements of personal appraisal. Furthermore, the judges frequently failed to maintain a fidelity to the principle of the method. They tended to rank and grade their men without practical use of the standard individuals presupposed by the method. These and similar criticisms are made by H. O. Rugg, after a careful evaluation of

the Officers' Rating Scale.[10] He concludes that judgments of human traits, even if made in the careful manner required, approach validity only when the judgments of at least three and preferably more competent people are averaged.

THE DIAGNOSIS OF MORAL AND TEMPERAMENTAL QUALITIES

One of the most alluring problems in the whole field of personality measurement is that which has to do with those various subtle qualities which enter into one's moral dispositions, temperament, and character. These are shown chiefly in one's social relations and in the conduct of his tasks. The qualities referred to are almost too numerous to mention. Says Hollingworth:

> Two workmen of equal general competence, with identical degree of special skill, will nevertheless differ in character. One will work calmly, the other more excitedly; one will be steady, the other more erratic. Confidence and distrust, cheerfulness and gloom, generosity and selfishness, courage and cowardice, loyalty and infidelity, adaptability and stubbornness, truthfulness and deceitfulness, aggressiveness and submissiveness, taciturnity and loquacity, skepticism and credulity, and dozens of similar word pairs, indicate the extremes of various lines drawn through human character in common speech.[11]

All of these various characteristics offer important clues to the personality; but their measurement is so

[10] H. O. Rugg, "Is the Rating of Human Character Possible?" *Journal of Educational Psychology,* Nov., Dec., 1921; Jan., Feb., 1922.

[11] Hollingworth, *op. cit.,* pp. 179, 180.

complex and difficult, if not impossible, that little accomplishment can be looked for. To render the problem more confusing, it is of course true that there is a certain relativity in all or most of these characteristics. That is to say, the nature of their manifestation is relative both to the circumstances that call them forth and to the various qualities that may interrelate themselves in any given situation. This is effectively pointed out by Link:

> One of the great errors that employment managers, foremen, superintendents, and all other people including ministers, teachers and religious workers fall into, is the belief that the moral qualities are *absolute* qualities. They believe that if a man is lazy, he *is* lazy. If he is industrious, he *is* industrious. If he is good, he *is* good. And if he is bad, he *is* bad. In other words, they labor under the belief that the moral qualities are constant qualities which are an inseparable part of a human being as scales, fur and hide are an inseparable feature of the fish, the dog and the elephant; and further, that no matter where people are, or what they are doing, their moral qualities are an invariable part of their nature. Nothing could be farther from the truth. The moral qualities are not absolute. They are not blanket qualities, which cover an individual's entire range of life no matter under what circumstances he may live. On the contrary, moral traits are *relative,* and their nature depends upon a very wide variety of external economic, social and bodily conditions.[12]

Link's qualification is an important one to bear in mind. It is in keeping with the conception of person-

[12] H. C. Link, *Employment Psychology,* p. 203.

ality which we have been trying to maintain throughout this book, namely, that it is an integrated whole, each aspect interwoven with each other aspect, and always relating itself with a changing environment. As has been pointed out, what we call traits are not fixed and constant things, but only convenient references which may be separated off for study or comment.

Certain noteworthy efforts have been made to devise schemes for diagnosing individuals in these traits of disposition and temperament. The psychoanalyst Jung, for example, has made elaborate use of the so-called method of free association.[13] The method consists in dictating a list of stimulus words to a subject, the latter being instructed to respond to each word immediately with the word that is suggested by it. When the list is dictated, an assistant records the responses and measures in fractions of seconds the time elapsing between stimulus and response. The analysis of the subject is undertaken through an interpretation of the responses and a study of the points at which undue hesitations were evident. The theory of the method is that the response will be more or less influenced, not by purely intellectual reactions to the words, but by the emotional or temperamental background which each word stirs up. Jung claims to identify, for example, such types of response as the *objective type*, with undisturbed and normal reactions; the *definition* type, in which the subject is plagued by fear of being

[13] Jung's brilliant studies of the method are in part reported in his *Collected Papers on Analytical Psychology,* Chap. ii, Lectures 1 and 2.

thought stupid; and the *predicate* type, which seems to disclose a self-centered, sensitively personal disposition which in excess indicates lack of temperamental balance. It is claimed that careful analysis will show temperamental gloominess or cheerfulness by noting the predominance of responses of one kind or another; and further, that such characteristics as objective attitude, introversion, nature of impulses and interests may be detected by similar procedure. Many specialists in the use of this method hold that its possibilities place it in the foremost rank in the diagnosis of certain aspects of personality.

Another more recent and very ingenious test for certain character and temperamental traits is the "will-temperament" test devised by June E. Downey.[14] This consists of twelve specific examinations based chiefly upon handwriting. "The series includes speeded, retarded, disguised, blocked and automatic handwriting, slow and rapid imitation of script, and speeded writing in a restricted space." Downey has divided her series into three groups of four test exercises each, and claims that the reactions in each group are rather definitely patterned. A relatively high composite score on the first four tests, for example, indicates a "quick, flexible" type of individual; on the second group, it suggests an "aggressive" type; on the third, a "deliberate, methodical, careful" type. Such, at least, are the assumptions of the test.

What Downey is interested in, it appears, is not a

[14] Published by the World Book Co., with explanatory manuals. See also Downey's book, *The Will-Temperament and Its Testing.*

composite measurement of personality, but rather an analytical "profile" of a person's component traits. The twelve traits measured are the following: (1) speed of movement (whether a person naturally moves quickly or slowly); (2) freedom from load (the tendency to warm up rapidly and work at high pressure without external compulsion); (3) flexibility (ease and effectiveness in readjustment or adaptability); (4) speed of decision; (5) motor impulsion (impetuosity and energy of reaction); (6) reaction to contradiction (the degree of confidence with which one maintains his position against contradiction); (7) resistance to opposition (the tendency to overcome obstruction); (8) finality of judgment (whether one wavers or perseveres in his opinion); (9) motor inhibition (a test of "motor control, imperturbability and patience"); (10) interest in detail; (11) coördination of impulses ("capacity to handle a complex situation successfully without getting any of the factors involved"); and (12) volitional perseveration ("willingness to keep plugging away").[15]

A number of studies to determine the validity of the Downey test have been made. The problem is, of course, to discover whether the performances on the tests correlate with actual performances in life. If a person scores high on the test for "willingness to keep plugging away," for example, we can take it as a sure indication that he will "keep plugging away" at a disagreeable manual task? From the present state of

[15] Explanation following A. I. Gates, *Psychology for Students of Education,* pp. 466, 467.

investigations, it cannot be definitely asserted that such correlation necessarily exists.

An entirely different type of test for certain character qualities is being experimented with by a number of investigators. This consists of various artificially created situations requiring actual performance analogous to life activities.[16] For example, the individual to be tested is permitted to find a "lost" article whose owner is known, with the object of determining whether he will make a sincere effort to return it; he is given an opportunity to cheat in an examination; he is placed in a position where he may accept or reject credit that is not due him; he is placed in a position where he may stick to a point or relinquish it when he knows he is right; or he is given a task with pencil where it is required to keep the eyes closed, the task being of such a nature that peeping would be evident in the result. Imagination will suggest many similar devices.

Such methods as these have the value of being truly objective. They involve obvious difficulties in administration, but the serious problem is whether they are true measures. Does a specific weakness disclosed by one of these ingenious devices necessarily indicate a general weakness of the same nature? Is a person who peeks when told not to do so, or who accepts unearned credit, one who would cheat or act dishonestly in his general behavior? One suspects that a person who

[16] See Paul F. Voelker's Study, "The Function of Ideals and Attitudes in Social Education," *Teachers College Contributions to Education,* No. 112; also, L. M. Terman *et al., Genetic Studies of Genius,* vol. i, Chap. xvii.

might resort to a bit of trickery in an examination would possibly prove the soul of honor in a crucial life situation or when his loyalty was involved. Our habit systems are extremely complex and relative, and the discovery of a few "kinks" does not necessarily indicate a general condition.

In addition to these attempts at direct measurement of moral character, there have been several attempts at indirect measurement. These have been in the nature of verbal problems and questions designed to test the moral judgment. It is recognized that an intelligent but immoral person may make a high score on such an examination; but on the other hand it may be assumed that a low score indicates inability to recognize a moral principle and consequent inability to act in accordance with it.[17]

There have also been reported certain strictly experimental attempts to measure æsthetic sensibility.[18] One of these is an effort to measure appreciation of form, design, and poetry, by requiring the individual to rank specimens in the order of merit. The test was designed by Thorndike. A somewhat similar test of the appreciation of pictures was experimented with by Cattell, Glascock, and Washburn. As Freeman points out, we have much reason to doubt that æsthetic susceptibility exists as a general trait. A person may possess a delicate appreciation for one specific form of art and lack it in another. Tests of this type, then,

[17] A brief but complete account of tests of moral attitudes and judgments is given by Frank N. Freeman in his book, *Mental Tests*, pp. 213-22. [18] Reported by Freeman, *op. cit.*, pp. 222-25.

must be interpreted only with strict reference to the material used.

PHYSIOGNOMY

Broadly speaking, physiognomy is a study of physical features as an index to traits. The physical features studied include those of the face, body, and cranium. It would be interesting here to trace the history and theories of physiognomy in its various branches, but it is hardly worth while to devote much space to a subject that offers so little in the way of personality measurement. In view, however, of the widespread practice and belief in phrenology, and in physiognomy in its narrower sense (the study of facial features), a brief consideration of the claims of each should be undertaken.

Griffitts states the four fundamental principles of phrenology as follows:[19]

1. That the "mind" is made up of a large number of intellectual, emotional, and moral faculties.

2. That there are definite centers in the brain for each of these intellectual, emotional, and moral traits. These centers are frequently spoken of as "organs" of the traits.

3. That the degree to which any of these faculties is developed corresponds to the development of the particular part of the brain where it is "located."

4. That the differences in the relative degrees of development of these "organs" may be discovered by observing the shape of the skull.

If the above principles are valid [Griffitts says] one ought to be able to determine the "strength" of the different ca-

[19] Griffitts, *op. cit.*, pp. 53 *ff.*

pacities and proclivities of the individual by studying the shape of the skull; . . . [and] phrenology must be accepted as a valid means of analyzing character, unless, while true, there are other factors which may obscure results. However, if any one of them is false, then phrenology as a system must be rejected.

Griffitts then proceeds effectively to demonstrate the fallacies inherent in the phrenological assumptions, his arguments being those familiar to students of psychology.

As regards the so-called mental faculties, it may be safely asserted that there are no such things in the sense implied in phrenology. In the first place, many of them are not cerebral at all in their fundamental nature, but are instinctive, organic, or emotional, and as such are based upon processes below the cerebrum. If the cerebral processes enter into them, it is only in a collateral or secondary way. But even with the cerebral processes proper, such as the various acts of memory, reasoning, and perception, it is impossible for these to be localized in an organ because they involve interrelations and interconnections among all the various processes. Memories involve perceptions, perceptions involve memories, and reasoning involves both; and every time in combinations that are unique.

If there are no faculties, it is superfluous to talk about their localization. The phrenologist likes to remind us, however, that certain functions are known to be localized. It is quite true that there are some known areas in the Rolandic region which have to do with certain sensations, and other areas in the same

region which have to do with certain functions of motor control. It is known, too, that nerve impulses from the eyes are transmitted to an area at the back of the cerebrum, and that those from the ears are transmitted to lobes at the sides of the brain. But functions of sensation and motor control are not rational processes, nor are the perceptions, understandings, and associations that go along with them limited to any area at all. Furthermore, so far as areas of sensation and motor control have been localized, they disagree entirely from the "faculties" located by phrenologists in those areas.

Much investigation has shown that there is little or no correlation between the size of the brain or any part of it and intelligence. An exceedingly small head (microcephalus) is accompanied by feeble-mindedness or idiocy; but on the other hand, many people of deficient mentality have large and well-proportioned heads, just as geniuses sometimes have small ones. Even if "faculties" had "organs" localized in the cortex, they could hardly affect the size or shape of the skull for the reason that the human cortex averages but a few millimeters in thickness, and investigations have shown that the difference between used and unused parts is only about one millimeter.

Turning from phrenology to the physiognomy of the face, we must admit at the outset that facial expression is quite responsive to emotional and mental states. Much investigation, including an important work by Darwin, has been made in this field.[20] There

[20] For a brief but careful review of the subject, see F. H. Allport, *Social Psychology,* Chap. ix.

is no doubt that any emotion or mental attitude constantly repeated will effect some modification of the facial habits, producing such features as the frown, upturned or downward-drawn mouth, the sneer, "crow's feet," and wrinkles formed at right angles to the direction of contraction of frequently used muscles. These various features, however, are not formed with equal readiness upon all people. People differ in the responsiveness of facial muscles to emotional states; and the texture or thickness of the skin, together with the amount and distribution of fatty tissue, largely controls the susceptibility to wrinkles. We are never justified in assuming fixed causes for them. The frown may be due, not to mean disposition, but to sensitive eyes. Wrinkles at the corners of the eyes may be due either to laughing or squinting, or may be induced by an excessive dryness of the skin. It may yet be said that people who are generally happy develop countenances quite different from those who are habitually sad and pessimistic, but most of us are habitually neither the one way nor the other. Animated people use their facial muscles more than spiritless ones do, but many feeble-minded people are very animated. The keen and alert eye is some indication of mental animation, though all educators discover that the bright-eyed student is sometimes a stupid one. Some of the most brilliant minds peer through dull and fishy eyes.

In addition to the features mentioned, the tonus level conveys some suggestions as to character. Flabbiness may indicate the *roué* or the prostitute, but may be

due, on the other hand, to prolonged ill health or exhausting work. "Wear and tear" on the face may characterize one of adventurous and rugged spirit, but it will be alike for the archæological explorer, the prospector, and the sheep-herder. Healthful tonus may suggest clean living and good organic functioning, a vague basis indeed for character analysis.

All these and other factors contribute to the formation of the adult countenance. The ensemble is frequently such that some vague inference as to the personality of its possessor may be drawn. Certainly we should seldom err in choosing the saint from the brute, the drunkard from the ascetic, or the idiot from the intelligent. In finer discriminations we may develop some facility; but the mere fact that we do form judgments from faces is no proof that our judgments are right. We are seldom aware, in these instances, of the parts played by our preconceived ideas, prejudices, and other influences of past experience. Analysts are well aware that they will be declared infallible by subjects whom they flatter.

Several studies of character judgment based on photographs have been made, and the results checked to determine the amount of agreement among the judges.[21] From these it appears that very little agreement exists as a rule, although some traits seem more susceptible of accurate judgment than others. At any rate there is no warrant for the assumption that character analysis is possible by this method.

It is safe to assert that only those facial character-

[21] For example, see Hollingworth, *op. cit.*, Chap. iii.

istics resulting from habitual behavior and repeated experience afford any index even remotely indicative of character, temperament, or abilities. The pseudo-science of physiognomy which bases its "analyses" upon such morphological features as dimensions of the forehead, prominence of the chin, shape of the nose, ears, or profile, or texture of the skin and hair, can claim but little more reliability than palmistry. The thought, for example, that the concave or convex profile is an index to the personality is absurd.[22]

Two popular "systems" of character analysis which it is needless to discuss in these pages are palmistry and analysis of handwriting. The former, though a harmless indoor pastime, seldom pretends to pose among intelligent people as a science. The latter, however, has received some attention from scientific people, and there are some who profess to have found significance in it. But here again we are no doubt dealing with a wholly inadequate medium. This is the conclusion of Watson, for example, who gives a brief review of the studies.[23] He says: "When one examines the whole mass of literature bearing upon personality studies of these kinds one is soon convinced that it is a tissue of exaggeration and that the so-called results will not bear critical experimental testing."

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[22] For a good study of facial physiognomy from the scientific point of view, see Griffitts, *op. cit.*, Chap. iv.

[23] John B. Watson, *Psychology from the Standpoint of a Behaviorist*, pp. 429-31.

CHAPTER XIII

HOW TO CREATE PERSONALITY

The country is flooded with self-styled "Psychologists," always spelt with a capital. If you believe what they say about themselves, they are the "master orators," the "miracle workers," the "wizards" of our time.

Release your stupendous individuality [says one]. Discover this amazing power within you—a power so mighty, so all pervading, so irresistible, that it knows no obstacle. It is a power to materialize your every wish—to bring wealth, dominance, personal magnetism, happiness at your bidding. . . . At last I can help you to realize your greatest desires. . . . I can help you to the top rung of life's most successful ladder. . . . Let me help you to open that wonderful storehouse in your mind and bring out the precious jewels contained therein.

Donald A. Laird, in the Preface to his excellent book, *Increasing Human Efficiency*, tells the following:

Several summers ago I met a bank clerk in the Rocky Mountains. When he found that I was a psychologist he came to me for advice. He had been working conscientiously for years and planning ways of "getting ahead" to buy a home, but for some reason he seemed to be avoided by Lady Luck.

He decided that it might be something beside enthusiastic

work day in and day out that brought the vague reward we call "success." One day an advertisement caught his eye. It started: "You, too, may have this amazing secret of success." After reading through the advertisement he sent in the coupon and soon had the books in his possession. Eagerly he drank in every word, feeling that here he had found exactly what he needed.

Then he saw another advertisement of an "Inner Power Now Revealed" book. He bought that. And another, and another until he had two shelves filled with books of this sort when I first made his acquaintance.

These books I borrowed and read. In not one of them did I find anything that would help one in any other way than by reassuring him of his great potency for success—and assurance will not butter bread or buy a home. In not one of them was there any real psychology that their owner could use. Yet I knew that practical psychology could be made plain and useful to any one who could read.

Whatever power these "systems" can impart to any one is, as Laird says, "by reassuring him of his great potency for success." A little exaltation will of course hurt no one. It is a healthful sort of feeling. But it is no substitute for intelligence, vocational ability, moral habits, leadership, culture, social habits, or any other desirable qualties which inheritance and creative experience alone can supply. The patent and fundamental error in any system that the personality mongers may attempt to sell is in their notion of a mystical personality as a single something that hovers somewhere in our being, ready to be conjured by a wizard.

Let us oppose this naïve conception with a figure of speech:

The rose horticulturist carefully prepares his soil, mingling with it in perfect proportions the fertilizers which centuries of experience have taught to be best. Into this pregnant ground he places with intelligent and patient skill the tender shoots of some rose, the latest child of a long ancestry of genetically guided parentage. Now he bestows upon his acres, with unremitting solicitude, all the attention that the most thoughtful mother could give her children. Day by day he makes over their bed. At night he covers them to protect them from the cold; at dawn he is out to remove their blankets that they may thrive in the warmth of the sun. Day by day he feeds them the life-giving water: not too much—just enough. He prunes, he props, and he sprays. And so there comes a time when the harvest of roses is blown and plucked and carried away to some chemist's laboratory. Then begins another patient and mysterious process; the slow distillation, achieved by a means that generations of distillers and the contributions of science have conspired to perfect. And out of the long process, from soil to beaker, draining into a final essence, there comes attar of roses—for every forty thousand roses an ounce; for every eighty roses, a single drop.

Personality is a similar emergence, only a thousand times more complex. For it is no single essence. Every separate aspect of it is an essence drawn from preceding sources and processes as intricate as those of the attar. And every separate aspect is interlocked with every other aspect. Yet some will preach that personality may be changed by a series of foolish exer-

cises, or by reading somebody's books, or by some mystical mumbo jumbo. Just as foolish would it be for the horticulturist to buy a fairy's wand of a mountebank, and by waving it over barren fields expect to find the precious drops in a teacup.

Can we, then, deliberately create or mold or modify our personality? Within limitations, yes. Realizing that through all the years of our life we have been weaving the structure of our personality, we may yet, in certain ways, effect changes in it by conscious effort.

LOOKING AFTER THE ENERGY SUPPLY

Good health is a reservoir of personality, for good health means energy, ambition, and a contented mind. Poor health is likewise a reservoir of a certain kind of personality, for it encourages sluggish traits, negativity, and a cheerless demeanor. If you choose the former, do not search for it in balms or bedtime lessons. Make up your mind that it can only be attained or maintained by a regimen that demands faithful and diligent attention. It was said that Byron ate chalk to acquire a pallid and poetical complexion. Whether true or not, the suggestion is helpful if you morbidly desire to become a pathological eccentric. You might even try ground glass which, if thoroughly pulverized and eaten at first in very small doses, may produce the desired effect.

The majority of us enjoy a fair degree of good health, but there is probably one in a hundred who has thoroughly capitalized his physical resources. Not

being conscious of our health, we neglect it and drift along below the standard that we might easily attain. It should require no lesson in physiology to convince one that efficiency, alertness, poise, force, enthusiasm, self-confidence, are all dependent, in the last analysis, upon the surplus of animal energy available over and above that which is necessary to keep the vegetative processes going. It is folly, in other words, to attempt to make an effective or dynamic personality of one's self if the sources of energy are deficient. It is probably true that most of the pathetic frequenters of cult centers and "psychology" lectures would get out and fight their battles if they were physically and organically fit. Not only is it the direct effect of deficient energy that impairs personality; more important and dangerous is the indirect effect upon the mind. Depletion is the mother of mental ills.

He who honestly desires to improve his personality should visit a physician—a real medical man—and have a thorough examination as the first step. Other details may follow. But first find out what surgical and medical attention is required, not forgetting the eyes. Attend to these matters. Get the physician's advice as to continuous care—and observe it.

Encroaching, perhaps, upon the prerogative of the physician, we may lay down the following common-sense rules:[1]

1. A dietary favorable to the production of nervous energy must be sought, but it is not to be found in

[1] Taken in abstract from J. W. Courtney, *The Conquest of Nerves*, Chap. ix.

fads, patent foods, or near foods. Do not experiment with exclusive diets such as the vegetarian. Food should be simple, generous in quantity, varied in character, well cooked, and well served. The last two items are important for appetite and digestion.

2. Daily evacuation of the bowels is essential, but an indiscriminate use of purgatives is to be condemned. Irregularity is not to be experimented with, but to be treated under the advice of a physician.

3. Avoid alcohol and tobacco if you are nervous or high-strung. An outer calm or composure often hides a suppressed nervous condition which stimulants will aggravate.

4. The bath and rub-down aid greatly in restoring tone and decreasing irritability. But contrary to popular opinion, the cold plunge is seldom beneficial, especially to the nervous. The temperature of the bath should be but slightly below that of the room, and the latter should be comfortably warm to the naked body. A handful of salt in the water is beneficial. Take the bath on arising. It should occupy about five minutes, and friction of the skin should be kept up by a rubber sponge or coarse mitten. After the first two or three minutes, the temperature should be materially lowered by letting cold water run in.

5. Rest and exercise should be intelligently combined. The claim that physical fatigue is mainly of mental origin is dangerous, and may result in the wasting of precious energies. The advice to the sufferer from physical fatigue to take more exercise, or to purchase a "home exerciser," or join a gymnasium is likely

to lead to more trouble. A certain amount of exercise is indispensable, but it is not requisite to health to build up a great muscular system. A well person will get much benefit from outdoor sports in moderation. A good walk with a goal in view is excellent, but one must be dressed for the weather. Bare heads or bare chests are inadvisable in cold weather. Games involving no intense competition are best for the tired and nervous. Physical repose is all-important. When one suffers from disordered sleep, he should get rest in the daytime. If one wakes very early in the morning and tosses about, he should realize that his uneasiness is due chiefly to irritation at not being able to sleep, and should endeavor to rest even without sleeping. Assume the attitude of sleep and concentrate the mind on the benefit of rest—and relax. During favorable weather it is well to take the rest out of doors or in a freely ventilated room. Always avoid chill. Jaded people will do well to lie down an hour or more before the noonday and evening meals. Relax. Think only of pleasant things, if you must think. Travel or new surroundings are not so good as a comfortable home environment for a jaded person.

In the matter of health, and hence of energy, the old notion has been that disease or ailment was a local affair only, some affection of stomach, nerves, heart, lungs, kidneys; and that the thing was definitely placed when we had given it a name—indigestion, rheumatism, neuritis, etc. But of late years much has been learned about the unity of the human organism and the inter-

dependence of all its parts. It is a unity because the blood stream sweeps through all of it, because the chemical products of the glands go to every cell, because it is interconnected by the great nervous system, and because conditions in the brain are intimately concerned with the condition of the whole. The result of this unifying is that no part can be affected without affecting the total organism.

One most significant fact that strikes us in this unity is the importance of what may be called mental health in its influence over the general well-being and energy. In fact, it is a relationship that works both ways. A morbid mind produces a morbid body, and a morbid body produces a morbid mind. Many physicians are to-day practicing the technique of cheerfulness as an essential part of their treatment, and numerous schools of health—psychological and divine—are utilizing the mind, knowingly or unknowingly, as the instrument of physical improvement. We all know how frequently the mental state directly affects our health; how often nervous indigestion results from worry or strain, headache from excitement or grief. And there is no doubt that numerous of our ills are at least in part due to such causes.

If the mental state can thus affect the physical, it is evident that there must be some close connection between the two. This connection lies in the fact that mind and body are one—a unit. If mentally we are morose, worried, or dejected, the functioning of the brain is debilitated. Its tone or vitality is reduced and it throws off poisonous waste products. These disturb-

ing mental states always have an emotional correlate, and in emotional conditions there are gland activities that may be helpful to one in a state of vigorous activity, but disturb the organic balance if one is quiescent. The nervous depletion in the morbidly active brain is immediately reflected in the lesser nerve centers of the lower brain and spinal cord, and from these the impulses that regulate the functioning of organic and bodily processes are directly impaired, often permitting the wastage of tissues or lodgment of disease. On the other hand, let confidence, hope, cheerfulness prevail as a mental state, and the vital mentality is maintained or increased—a condition that carries right on to the organs and processes of the body. These facts largely, if not wholly, explain the many cures that have been effected through psychotherapeutic treatments and the practices of cults.

The moral of all this for the person seeking the improvement of personality is plain. Cultivate habits of cheerful and hopeful outlook. Expunge habits of morbid self-thought, introspection, and worry. Turn the thoughts outward. Think of the rewards to come, not of the defeats or humiliations sustained. "Let the dead past bury its dead." A great help in developing an effective personality is to stop worrying about your personality.

IMPROVING PERSONAL EFFICIENCY

For purposes of this section, the term "personal efficiency" will have reference to the various traits and abilities that are directly concerned in making one

capable in his purposeful activities. Generally, these traits and abilities would be manual and intellectual. It is, of course, true that the entire personality becomes involved in the complex activities of any situation, whether "on the job" or on a holiday; but in the performance of one's common tasks it is always possible to analyze out certain specific factors and to consider their improvement.

It is in this question of improving personal efficiency that certain serious fallacies have prevailed, and they are commonly met with in the various commercialized systems of self-improvement. One error lies in the assumption that desirable qualities of personality can be improved *in general.* That is to say, it is believed, or for purposes of selling a system it is asserted, that memory, attention, reasoning, persistency, judgment, accuracy, and the like are single or unitary qualities, each one of which may be strengthened in its entirety by some series of exercises. This notion harks back to the old faculty psychology which has long since been repudiated by respectable psychologists. Such terms as those mentioned above are but group names for functions that bear some similarity to one another. The term "memory," for example, includes all those functions that are characterized by retention, recall, and recognition. In the same way the term "quadruped" includes all animals possessing four legs. It is patently absurd to think of improving all quadrupeds by giving exercises to a few of them, or to improve a theoretical *quadruped in general* by exercising cats. For practical purposes, the analogy may be carried

over to the improvement of human qualities, and we may say: Do not try to improve qualities in general, but pick out the specific trait or ability that needs improving, and concentrate on that. Do not try to improve memory in general, but identify the particular applications of memory that your job calls for and seek ways and means for improving them. And likewise with attention, or what is popularly called "concentration." There is no general power of concentration, and consequently it cannot be strengthened in general. The surest guaranty of concentration is to be interested in your work.

In order not to be misunderstood, the writer must warn against a too liberal interpretation of the foregoing analogy with quadrupeds. Although we do not possess "faculties," we do possess a tendency to generalize our experience. The tendency makes possible a transfer and extension of the fruits of training—something that cannot take place throughout the group of quadrupeds. What is meant by a tendency to generalize? Just this: an inclination to form ideals of workmanship through much experience in exacting workmanship; to acquire principles of method and procedure through much successful practice; to acquire habits of criticism and review as a result of many errors and corrections in our work. Thus through extensive experience many helpful habits may be formed which may be applied to wider and wider fields of endeavor. Through much laboratory experience, one may grow to value accuracy wherever it may be practiced; or in cabinet-making one may evolve standards of workman-

ship that would find expression in other kinds of handicraft; or in work demanding analytical reasoning, certain principles of procedure may be formulated into habit and used again in situations that are not too dissimilar.

This is an enunciation of the doctrine of transfer of training, about which there has been much discussion and experimenting for many years. Expert opinion now commonly agrees that transfer of this sort does take place, and that it largely depends upon the native capacity of the mind. The naturally bright person will grasp the generalizations much more readily than the dull, and will more quickly recognize the situations where they may be applied. One of the chief functions of education is to provide the experience and guidance that will build these generalizations; and thus through good education a person with mediocre mind may get further than a bright person deprived of educational advantages. It is to be recognized, too, that all life's experience is a continual source of generalizations. It has been pointed out in preceding chapters that these may become rigid habits—to the detriment, often, of one's social adjustment and progress.

What has been said gives the cue to method in the improvement of personal efficiency. The direct route to improvement is to pick out the specific traits or abilities that are important in your actual tasks. Strengthen these, and if, in so doing, general ideals or methods emerge which may "transfer," so much the better. But do not depend upon somebody's evening and morning exercises, for any training you may get

from them will probably never find its way around to your particular job. It will probably never apply to anything because of its peculiar, limited, and artificial character.

Obviously, a program for improving personal efficiency cannot be undertaken unless one finds out what to improve. Self-analysis is necessary. The details of analysis depend upon the nature of one's tasks. If one is a lawyer, his analysis will be quite different from that necessary for an automobile mechanic. This is because one cannot merely ask himself: Is my memory at fault? Is my power of attention at fault? Is my power of reasoning at fault? The lawyer must ask: Is my ability to remember faces at fault? Is my ability to remember citations at fault? Is the logical organization of my briefs at fault? Can my habits of reading the codes be improved? And the automobile mechanic must ask: Am I using the best method in drilling? Wherein is my knowledge of internal combustion engines weakest? How can I improve my procedure in tearing down an engine? Do I get to work on time? Why is my attention continually wandering from my task?

The analysis of occupations is a conspicuous development of recent vocational psychology. The procedure is commonly known as *job analysis*. It was at first used as a device in the employing offices of large establishments, but in the World War was widely used in the placement of men in the noncombatant branches of the army. As Charters says, however, "its most valuable use is in connection with training programs."

A simple illustration of job analysis is the following one, based upon the work of an application clerk in a department store:[2]

1. Meets people who desire to open accounts.
2. Asks them for the information to fill out blank.
3. Writes form letters or telephones for references.
4. Fills out mercantile agency blanks.
5. Looks up rating in Dun's, etc.
6. Files applications temporarily till references come in.
7. Makes notes of references on blanks and hands to credit chief, who passes them on.
8. Enters name, address, and number of applications in index.
9. Answers requests from other firms for references.

The whole question of improving personal efficiency reduces to a matter of establishing effectual habits in the place of ineffectual ones. The person who earnestly desires to make himself efficient will, then, clearly define just what it is he wishes to accomplish. If the end desired is one concerning a skill or procedure in a mechanical operation, the difficulties are not great if one is seriously disposed. It is merely a matter of determining how the thing should be done, getting the necessary instruction from technical books or from experts, or by going to some special school, and then persistently and conscientiously doing the thing the right way until the habit and skill are established. Definition, instruc-

[2] From W. W. Charters, *Curriculum Construction,* p. 35. See his article, "Review and Critique of Curriculum-Making for the Vocations," in the *Twenty-Sixth Yearbook of the National Society for the Study of Education,* Part I, Chap. xxvii.

tion, and zealous practice will bring the result. In actual situations, of course, it is seldom a single skill that requires improvement. It is rather the whole series of skills involved in the operation.

So far as manual and intellectual skills are concerned, it is a well-known fact that even experts seldom perform up to anything like their capacity. This has been demonstrated experimentally time and again. Bryan and Harter, in their classical studies in telegraphy, have shown how interest and zeal have greatly improved the performance of telegraphers after long periods of dead-level service.

> A fact which seems to be highly significant is that years of daily practice in receiving at ordinary rates will not bring a man to his own maximum ability to receive. The proof of this fact is that men whose receiving curve has been upon a level for years, frequently rise to a far higher rate when forced to do so in order to secure and hold a position requiring the higher skill. . . . One conclusion seems to stand out from all these facts more clearly than anything else, namely, that in learning to interpret the telegraphic language, it is intense effort which educates.[3]

The same is true in other types of skill. A person who desires to improve himself in the dextrous skills of his craft should realize that his performances are probably drifting along on plateaus which are just high enough to permit him to "get by." Skills have a way of doing this. The physiological and psy-

[3] Quoted from Bryan and Harter by Daniel Starch, *Educational Psychology*, p. 158.

chological limits to any one's performance are seldom attained. It often takes assiduous practice to get off the plateau because one's habits are organized to maintain just that level. The cardinal principles of practice which, if observed, will lift the performance are: (1) zeal, and (2) frequent short practice periods rather than long ones.

The job analysis which will enable one to define the specific performances that may be improved has not been extended to many activities outside the trades.[4] There is much experimental analysis of teaching, however. Some managerial activities have been analyzed, but generally speaking the professional man, banker, merchant, or superintendent must needs rely upon his own analysis. This, however, should not be difficult. The main point is to identify the *specific* activities that one feels should be improved. Especially in the case of the higher occupations, and also in the case of vocations in which one comes into contact with many people, the traits that require improving are social ones, and will be considered in the next section.

In addition to the strictly occupational abilities, there are various other abilities which contribute to one's personal efficiency in his chosen activities. These would apply equally to all lines of work, whether routine, technical, or professional. Among these should be

[4] One of the best brief discussions of job analysis will be found in H. E. Burtt's *Principles of Employment Psychology.* For a summary of analytical experiments in certain fields, see Charters' *Curriculum Construction,* Chap. xxi. One of the best single attempts at job analysis in teaching is H. O. Rugg's "Rating Scale for Judging Teachers," *Elementary School Journal,* May, 1920.

emphasized: (1) a broad and accurate knowledge of the historical, economic, and artistic material relative to one's chosen field, thus adding to his prestige and authority; (2) ability to study effectively so that he may best profit by the use of technical books and references; (3) a memory for the kinds of facts which his work makes constant demand for. As regards Item 1, it is of course evident that its improvement is only a matter of interested and conscientious study. This kind of study will come without effort for any one who is in earnest about self-improvement. He should not base his study, however, upon casual or unorganized reading, but should go to a librarian or other authority and get assistance in choosing a systematic list of books and periodicals. Departments in universities often conduct reference bureaus where such information may be obtained.

As for training in effective study and the improvement of memory, it were perhaps well to warn once again against falling a prey to commercialized "systems." Especially in the matter of memory, it can only be said that there is no system which will improve memory in general. The present writer hesitates to undertake any discussion of these matters of improving study and memory because justice cannot be done to the subjects in any brief summary. He has chosen the alternative, therefore, of referring the reader to five small and excellent books: (1) Dewey's *How We Think* (entire book); (2) Kitson's *How to Use Your Mind* (entire book); (3) Laird's *Increasing Personal Efficiency* (Chaps. II, III, V-VIII); (4) Boraas' *Teach-*

ing to Think (entire book); (5) Book's *Learning How to Study and Work Effectively* (entire volume).

In addition to the various factors of personal efficiency already mentioned, there is also the question of miscellaneous habits. No doubt we all possess habits of doubtful value, and frequently very undesirable ones, which could well be replaced by good ones. We all know what these habits are in our own case. Whoever has sufficient interest in self-improvement possesses the will to change his habits. The only question is regarding the best way to do it. William James wrote the classical treatise on habits, and in it he laid down some principles that have never been much improved upon.[5] His key thought is that "one must *decide wholeheartedly* and *not let a single exception occur* after one has started to break a habit." The only exception is the use of "dope," for the body could not stand its sudden cessation. Laird points out the great advantage in making habit-breaking a pleasant experience. The best way to do this is to provide a substitute reaction that does actually bring some satisfaction or pleasure. Whether such a substitute can be found or not, the stern necessity of breaking undesirable habits is an important item in personality building.

IMPROVING SOCIAL TRAITS

The term "social traits" is here used in reference to any aspects of behavior that are peculiarly concerned in the interaction of the individual with his fellows. In

[5] See his *Psychology, Briefer Course*, pp. 144-150.

this sense the traits and abilities suggested in the preceding section are, strictly speaking, social, for all occupational activities except those of the hermit are such as involve relationships with other people. As was stated in a previous chapter, we are inevitably cast in a social *milieu*, and our whole personality grows in that medium. Obviously, however, certain aspects of the personality are especially significant in the social relationships.

Let the reader be reminded of the countless and subtle fluctuations in his behavior that may in one way or another condition the reactions of others toward him; and let him be further reminded that these dependent reactions of others react upon his behavior, thus establishing an interaction that is mutually modifying and progressive. He will then grasp the fluidic nature of all social behavior, and will see that one's peculiarly social traits are not stable habits unless the personality has literally congealed. This sensitivity of the social traits suggests that they may be more susceptible to intelligent control than are the more specific habits of skill and efficiency. But on the other hand it would seem that they are less easily defined to begin with, less readily analyzed out of the total situation. It is far less simple to make a job analysis of a purely social situation than of a vocational one.

If we try to analyze our social behavior, we find that we may break it up into two classifications, the specific responses and the general modes. Some of the following may illustrate specific improvable social responses in a given individual's behavior: getting excited when

discussing religion; embarrassment in the presence of one's superior officer; using a crude form of salutation or address; sneering when some particular subject is mentioned; giggling; assuming a bored attitude when another has the floor; interrupting; using a sharp or contemptuous tone in giving orders; being surly to a traffic officer; picking the teeth in public. Such a list of specific activities of an undesirable kind might be continued indefinitely. For each item in the list a counterpart might be named, that is to say, a contrary and desirable reaction. But of a different character from these specific items are general modes of behavior. By these are meant broad trends of personality that are not limited to particular instances or to any fixed channel of response. In a column of undesirable general modes might be mentioned intolerance, excitability, vulgarity, negativity, arrogance, reclusion, dishonesty, and many others. Opposed to these would be the opposite and desirable modes: tolerance, poise, refinement, leadership, courtesy, sociability, honesty.

In any serious attempt at self-improvement of the personality, the wise procedure in these social traits would be from the specific to the general. Assuming that the individual is capable of an intelligent and unbiased appraisal of his own behavior, it is advised that he subject himself to a rigorous and searching analysis. Such an analysis should reveal specific habits that tend to produce prejudicial attitudes against the individual upon the part of others. The difficulty with this kind of self-appraisal is one's blindness to many of his own shortcomings. Nevertheless, there is probably

not one of us but is quite conscious of certain habits of a social bearing which demand correction. For the correction of such habits, the first requisite is as already remarked, a sincere desire to improve the personality. Given this, the simple rule to follow would be to determine upon the appropriate counter-reaction, and then to seek every opportunity to practice it in place of the undesirable one.

Many difficulties and dangers arise when one undertakes to apply the simple rule in social situations. This is chiefly because the emotions and feelings are involved. The problem is not merely one of setting up appropriate motor acts; it goes much deeper than that. As has been pointed out in a previous chapter, the emotions and feelings are themselves habit responses, but they do not fall under the ready control that is characteristic of motor activities. Suppose, for example, that a man has a habit of becoming angry when his wife serves food that he dislikes. If, after the flood of anger is over, he realizes that he has made an ass of himself, he may decide to reform. Thus he may determine to refrain from angry or insulting words when the next provocation arises. He may have self-respect and determination enough to carry out this resolution. But if on each occasion his angry feelings still arise, he is only half redeemed—less than that. The feelings are the most serious part of the case, for they are at the core of the whole situation.

It is in this matter of the feelings that we touch the critical point in self-control. To repress the angry words or unseemly acts, but to retain the feelings, is

but to muzzle the brute. All the danger of an outbreak is still there. In fact, suppressed feelings are more dangerous than vented feelings for they disrupt the healthy processes of mind and body. In a literal sense, they are poisonous. The person whose daily life is disturbed by petty angers, jealousies, animosities, or worries is in a fair way to become an invalid or a psychopath. Knowledge of these facts must serve as a help rather than a hindrance to one who truly desires improvement, for his problem becomes focalized upon the serious aspect of the case and the ways and means for improvement. He sees that it is self-destructive to hug his favorite and egoistic feelings to himself, and he gets into a mood and a state of intelligence favorable to reform. Such a mood and such a state are easy enough for one endowed with a sense of humor; but for the person whose perspective is out of joint, a revolution is demanded.

Let us say, then, that one has arrived at a mood and a state of intelligence favorable to reform, either because one has a sense of humor or a dawning perspective which shows him the absurdity of his disturbing feelings as compared with the bigger issues of life. This state of preparedness, be it understood, is focused upon a specific situation in which the individual responds in a socially undesirable way. Will his feelings now fall under his control? Rarely at first. They probably run too deep for immediate response. But here is the time for intelligence to insist upon the integrity of the personality in this situation. These errant feelings are accustomed to complete autonomy. The

occasion is one that demands enlightened diplomacy, for intelligence dare not become the autocrat and willfully repress the feelings. Its task is to establish a new and complete harmony. The campaign may take time and courage. The very occasion that prompts the undesirable reaction must be deliberately sought time and again, and always with a determination to meet it with tranquillity and poise. Thus through practice aided by intelligence, the desired end may be brought about.

If one turns from these specific problems of self-reform to the general modes, the prospect becomes more difficult and uncertain. Here the problem is not the remedying of some isolated set of responses, but the remedying, rather, of an extensive tendency that cuts across one's whole behavior system. While the specific problem is one that has to do with a given type of behavior in a given situation, the general mode might have to do with the same type of behavior, but so comprehensively as to enter into a great number of differing situations. For example, there is such a condition as a tendency to embarrassment in the presence of a certain individual or group; but there is also such a condition as a general or extensive tendency to embarrassment.

The problem of a general mode has two angles. One may decide that he needs to *overcome* an *undesirable* tendency, or to *build a desirable* one. He needs to overcome timidity or to build self-confidence; to overcome irresoluteness or to build leadership; to overcome vulgarity or to build refinement. It may be said at once

that the only effective attitude of mind is the desire and the determination to *build.*

The complexity and interrelatedness of habits of all kinds—intellectual, motor, affective—that enter into these general modes carry the problem too far for the application of any specific corrective formula. Here, however, as in the case of specific social habits, the responsibility rests first with intelligence. The individual must foresee and plan his conduct for every emergency. The habit-formed tendencies of a lifetime, however, are leagued against him. Hence, the occasion calls for a redirection of great sections of the personality. How can this be accomplished?

There is no royal road, for the program involves the building of new habit systems. This requires first, again, a favorable state of mind. It is just here, and here only, that platform psychologists and systems of autosuggestion may do some good. If listening to a course of lectures, or reading a pamphlet, or saying repeatedly, "Every day in every way I am getting better and better," will serve to create faith in one's self, or an exaltation of selfhood, it is all to the good. One is then ready to *begin.* It is probably safe to say, however, that the normal and intelligent person who deliberately sets himself to a task of personality reconstruction is already possessed of more enduring earnestness than one can purchase from an advertiser.

The improvement of general modes and tendencies in the personality is not to be thought of as a problem that concerns only the handicapped or incompetent. There is room for improvement in every one. Per-

sonality development should be the constant practice of all, and to that end self-analysis as an occasional practice is advisable. By such analysis an individual gets his attention focused upon the critical aspects and is able to crystallize certain ideals: it enables him to clarify his thinking in its relation to the constant guidance of conduct. It will enable him to recognize more readily the situations in which improvement of conduct is needed, and will help him to anticipate them with preparedness. Self-analysis must make use of words which are names for general modes of behavior—initiative, coöperativeness, self-control, refinement and the like—but it must be remembered that these are only words describing processes. Responsibility, for example, cannot be conjured or charmed *as* responsibility, for the reason that it is not a thing but a quality implicit in one's activities. To develop responsibility, then, it is the activities one must train, not a mythical something with a name. To know the name is merely to be possessed of a device which will direct our attention to the appropriate activities.

Any number of self-analysis charts have been worked out. Some of these have itemized traits of the general personality, and some of them have been concerned with traits appropriate to certain occupations. H. L. Hollingworth has made some interesting studies to determine the validity of one's self-judgments, and has shown some interesting facts.[6] Using a group of twenty-five college students, he had each one rank himself in each of nine traits. Each also ranked each of

[6] Reported in his book, *Judging Human Character,* Chap. iv.

the others. He then compared the self-rankings with the average of the group rankings, and found that the former deviated from the latter to a high degree. He also found a strong tendency for the individuals to overestimate themselves in desirable traits and to underestimate themselves in undesirable ones. These tendencies to error would seem to disqualify self-rating charts as a means of ranking individuals in a group, but does not nullify their usefulness in any problem of self-improvement. For this latter purpose they are not to be used as a means for comparison with other people, but as a sort of inventory which will help the individual to crystallize his ideals and think more clearly in the guidance of his activities.

It amounts, then, to this: the improving of general modes of behavior must be set toward certain ideals (self-control, dignity, leadership, culture, etc.) depending on one's consciousness of personal needs; but in the attainment of these goals there must needs be a constructive modification of the whole personality. Such modification is possible to the extent that one's habits, especially his intellectual habits, are plastic. One should possess or form the habit of progress, the habit of re-learning. Open-minded, he should launch himself anew into the world of change and movement. He should move beyond his narrow set, mingle with people of various classes and occupations, join a liberal organization, attend some instructional group, read broadly and well, travel, shun prejudices and other poisons. Knowing his ideals, he should keep them ever before him, strengthened and enriched by

the fruits of his growing experience. He should observe and study the ways of those who exemplify his ideals, read the lives of those who typify them, and erect in his mind a master-image, an archetype.

The purpose of such a course of activities is frankly to stir up the entire personality, to send the energies into unaccustomed channels, to make contact with new ideas, to break down prejudices, to experience novel stimulations, and in a general way to shake down the old habit systems while at the same time encountering material for new and better integrations. And here it must be understood that these new integrations will be effective only if they cluster about worth-while interests in life; and a brooding interest in the self is not a worth-while one. Look at all strong and successful personalities and you will find that they are in the grip of purposes which make life real, galvanic, and eventful.

It is to be hoped that, as a by-product of such a liberalizing program, one might exercise the saving grace of a sense of humor, so that he would see his own amusing disproportions. One who is blind to silly eccentricities, abnormal projections of the ego, or sickly self-effacements may, however, remain happy in them.

PURGING THE UNCONSCIOUS

Nothing has been said as yet in this chapter concerning the "unconscious." Where we have mentioned habits of feeling or emotion, it has been as though these habits were always aboveboard and could be identified. Enough was said in the chapter on Feeling, and in that

dealing with Problems of the Unconscious, however, to convince the reader that many serious habit responses are furtive and secret. It will be recalled that some writers even make the unconscious the very source of personality, although their conception of the unconscious is often a form of mysticism. It is true, at all events, that many habitual reactions occur without a conscious antecedent, and that they are deeply inwrought with the feelings. These habits, as was said, account for many of our fears, loves, hates, antipathies, dreads, prejudices, sympathies, loyalties, and enthusiasms. They may be malign or benign. Their origin may be known or unknown, and it is often traceable to experiences of childhood. Malign habit tendencies of this kind assume great importance in any attempt at personality reconstruction.

It should be pointed out at once that morbid unconscious tendencies find fruitful soil in certain conditions of home life. The healthful home environment is one where there is neither cruelty, quarreling, prudery, nor bigotry. Unhappy home influences frequently deflect one's modes of living so that he turns inward to subjective compensations. Shame, humiliation, and resentment all encourage the thrusting of unpleasant realities from consciousness but at the same time facilitate the formation and activity of morbid dispositions.

Another fruitful source of such tendencies is the abnormal religious life. One may partake of the religious life in many salutary ways and forms, but there is an abyss of danger in that form which leaps in tumultuous emotion. Sane religion is a balanced expe-

rience of mind and feeling, encouraging a serene and noble personality. Insane religion is a tempest of base ecstasies and excesses, productive of deep and inward tendencies that are destructive.

A third condition that all too often builds morbid and harmful habits in the unconscious byways of the personality is the unnatural sex life. It is of course "natural" to live as nature intended, though nature's intentions seem to be liberal and modifiable enough. Unnaturalness in this matter does not necessarily lie in the *absence* of sex life, but rather in the habits of adjustment that one has formed. In this adjustment the pitfalls are many and various, and they stretch from infancy to adulthood. One may come safely through unscathed, and be nicely adjusted to celibacy. It is no doubt true, however, that the man or woman who is happily mated enjoys a prophylactic against numerous morbidities.

And lastly, it is needful to emphasize the lack of congenial and worth-while employment as a cause of numerous emotional tendencies. The neurotic tendencies of many idle women; the churlishness of men unhappy in their work; worries, fears, habits of indulgence, jealousies, and a host of other irregularities that spring from unconscious causes, may have their real origin in idleness or employment maladjustment. For women this has a special significance, for sordid and drudging housewifery is baneful. On the other hand, enlightened home making and child training are salutary.

It may probably be said that one who is happily cir-

cumstanced with regard to the foregoing conditions is in little danger of morbid unconscious habits. Exception would have to be made of those who have carried emotional complexes from childhood, and of those who are neurotically inclined through congenital disposition. The latter class is quite possibly small, for neurotic tendencies in adults usually indicate maleficent causal experiences. For people who earnestly desire the best type of personality, accordingly, some such rule as the following might be formulated: secure good health, a happy home, a wholesome religion or philosophy, a natural sex life, and a congenial occupation.

In many cases, however, the roots of a difficulty are very deep, lying in some long-forgotten experience. In such a case the roots may be pulled up by uncovering the experience. If good psychoanalysts were half as numerous as good physicians, it would perhaps be feasible and safe for each of us to be psychoanalyzed occasionally. It would probably be advisable. The trouble is that there are so many mountebanks who call themselves psychoanalysts, who are much more likely to produce morbidities than to cure them. Sound and effective psychoanalysis would succeed in discovering morbid tendencies in our make-up of which we might be ignorant, and would put us on the right track to correction through intelligent self-control. A sensible and responsible person often needs no more than just this definition of his difficulties. Thus the unconscious factor in an emotional habit system is brought to light and it becomes possible to build about it a new and normal habit system.

One may do much to re-create his own personality by watching his tendencies for suspicious symptoms. Any abnormal emotional disturbance that is habitually linked with a certain person, place, thing, or idea as stimulus may be so regarded. The emotion may be some form of fear, anger, or love, but if it is excessive it calls for correction; and correction, be it remembered, is never accomplished by forcible suppression. A mental house-cleaning is demanded.

One should look with suspicion upon undue tendencies to brood, or to think that one is being plotted against or gossiped about. An absorbing self-interest is another symptom. Tendencies of these sorts in one's disposition should be recognized and deliberately combated by an effort to change some of the major habits of life. One should swing himself into objective and social interests. He should find a hobby, if possible, in sociable athletics, club life, philanthropy, or some other occupation that will bring him into wholesome activity with other people. Pursuits such as these should supplant solitary habits, morbid studies, and participation in weird cults.

What is commonly called "losing one's grip" is another condition that should never be allowed to progress. This may usually be due to ill-health but is not infrequently the result of causes which medicine cannot touch. A reproof, humiliation, defeat, or failure may lie at the back of it and may be the core of emotional habits that could well lead to a persistent inadequacy. This condition is closely allied to the so-called inferiority complex with its various and peculiar

eccentricities. The best cure is a new and challenging task.

Causes which produce patent inadequacy or inferiority in one person may bring about quite another manifestation in another. One young man, who was rapidly developing an inordinate conceit and was in fact quite carried away with himself, was analyzed correctly by his own wife when she said it was all a compensation for the galling position of inferiority he was forced to hold while in school and college. He had been poor and unattractive, socially submerged and insignificant, and had no doubt developed an emotional complex of inferiority. And now, because he possessed some means and held a position of authority, that same complex was leading him to absurd limits of self-expression. In many cases of cruelty, arrogance, tyranny, conceitedness, snobbishness, we have similar examples of behavior habits that have developed as compensations or cloaks for underlying oppressions of inferiority or inadequacy.

Many of the queer, excessive, or prejudiced habits of thought that people have are but excuses to counterbalance some defect or failure. They are called *rationalizations*. The "woman-hater" and the "man-hater" illustrate these. The same is frequently true of doctrinaires and cultists. In the devotee of culture, the bookworm, the faddist, and the fop, we often find somewhat similar examples. What these people are unconscious of is the fact that their eccentricities are only a barrage to cover some deep-lying and perhaps trivial insufficiency.

A complete summary of the numerous aberrant tendencies that spring from unconscious causes would go far beyond the limits of a chapter. They range all the way from trifling eccentricities to perversions of conduct. We all have some of them in our make-up. It is when they arise to excess or morbidity that they must be taken as danger signals by any one sensible enough to recognize them. Seen as such, the remedial measures must depend upon the will and intelligence of the individual. Perhaps enough has been said in this chapter to indicate some of the larger principles of correction. Any detailed treatment would demand the rare and versatile abilities of an exceptionally qualified psychiatrist.

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